



**U. S. Department of Energy  
Federal Energy Technology Center**

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September 30, 1999

To: ALL PROSPECTIVE APPLICANTS

FINANCIAL ASSISTANCE SOLICITATION, NUMBER DE-PS26-99FT40578

**Development of Technologies and Analytical Capabilities for Vision 21 Energy Plants**

The purpose of this executive summary letter is to highlight some important elements of the Program Solicitation. This letter is not an integral part of the solicitation. The solicitation is a self-contained document. In the event of any conflict between the contents of this executive summary letter and the contents of the solicitation, the solicitation language will prevail.

The Department of Energy (DOE), Federal Energy Technology Center (FETC), is conducting this solicitation to competitively seek cost-shared applications for research and development of technologies and analytical capabilities needed to design and build fossil fuel plants with very high efficiency and environmental performance. This class of plant, which is referred to as "Vision 21" by DOE, would produce electricity, chemicals, fuels, or some combination of these products. Additional information on Vision 21 can be found in the Vision 21 Program Plan, which is on the FETC Internet website, under Products. Through this solicitation, FETC expects to support applications in the following Areas of Interest: (A) enabling and supporting technologies upon which the components and subsystems ("modules") of Vision 21 plants depend, (B) systems integration capability needed to combine two or more modules in Vision 21 plants, and (C) advanced plant design and visualization software leading to virtual demonstration of Vision 21 components, modules, and complete plants.

The solicitation is open for proposal submission for a one-year period with multiple closing dates. Any resultant awards are expected to be Cooperative Agreement instruments and will require cost sharing. Specific aspects related to (1) Areas of Interest, (2) proposal evaluation, (3) application preparation instructions, (4) projected funding (including cost-sharing requirements), and (5) the timing sequence for proposal submissions, review, selection, and award of financial assistance instruments, can be found in the solicitation.

Blank areas appearing in the Model Cooperative Agreement (See Section VI, Attachment B) indicated by "[TBD]" will be completed prior to award. The solicitation is divided into six sections as follows:

Section I	Introduction
Section II	Conditions and Notices
Section III	Application Preparation Instructions
Section IV	Evaluation and Selection
Section V	Electronic Forms and/or Documents
Section VI	Attachments:
	Attachment A--Program Areas of Interest
	Attachment B--Model Cooperative Agreement

All requests for explanation or interpretation of any part of the solicitation shall be submitted in writing to the Contracting Officer's e-mail address given below. For each proposal submission cycle, the Contracting Officer must receive your written question(s) within 15 calendar days prior to the application due date to allow sufficient time for a reply, if any, to reach all prospective applicants. If the Government's response to any question is applicable to offerors in general, the response will be posted at "<http://www.fetc.doe.gov/business/solicit/>." Therefore, applicants are encouraged to periodically check the FETC website.

It is recommended that all prospective applicants download a copy of the DOE "Lobbying Brochure" (<http://www.pr.doe.gov/lobbying.html>) which provides a summary of the statutory and regulatory restrictions regarding lobbying activities for Federal contractors and recipients.

All communications concerning this solicitation should cite the Program Solicitation number and be directed by way of e-mail to the attention of the Contracting Officer at "[johnson@fetc.doe.gov](mailto:johnson@fetc.doe.gov)."

Sincerely,

Raymond D. Johnson  
Contracting Officer  
Acquisition and Assistance Division

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## **Development of Technologies and Analytical Capabilities for Vision 21 Energy Plants**

### **SECTION I -- INTRODUCTION**

#### **A. Summary**

The Department of Energy (DOE), Federal Energy Technology Center (FETC), is seeking cost-shared applications for research and development of technologies and analytical capabilities needed to design and build fossil fuel plants with very high efficiency and environmental performance. The plants would produce electricity, chemicals, fuels, or a combination of these products, and possibly secondary products such as steam/heat for industrial use. This class of plant is referred to as "Vision 21" by DOE. Through this solicitation, FETC seeks to support applications in the following Areas of Interest: (A) enabling and supporting technologies upon which the components and subsystems ("modules") of Vision 21 plants depend, (B) systems integration capability needed to combine two or more modules in Vision 21 plants, and (C) advanced plant design and visualization software leading to virtual demonstration of Vision 21 components, modules, and complete plants.

This solicitation will be open to receive qualifying proposals through September 29, 2000. Proposals will be evaluated and selections made approximately every four months beginning about January 31, 2000. The proposal due date for the first evaluation period is November 30, 1999.

It is anticipated that multiple financial assistance awards, Cooperative Agreements, will result from this solicitation. Subject to the availability of funds, DOE expects to provide up to \$2.5 million per project for projects under area A, and up to \$1.5 million per project for projects under areas B and C. Periods of performance for all projects are up to three years. The minimum cost share is 20%. Roughly equal numbers of awards are expected to be made in each of the three Areas of Interest. DOE anticipates that future solicitations will support continuing activities on technologies that will require extensive research, development, and testing beyond the three-year period of performance covered by this solicitation.

#### **B. Background Information**

The Vision 21 program is an initiative of the U.S. Department of Energy's Office of Fossil Energy and the Federal Energy Technology Center. The goal of Vision 21 is to effectively eliminate, at competitive costs, environmental concerns associated with the use of fossil fuels for producing electricity, transportation fuels, or chemicals. Vision 21 is based on three premises: that we will need to rely on fossil fuels for a major share of our electricity, transportation fuel, and chemicals needs well into the 21st century; that it makes sense to rely on a diverse mix of energy resources, including coal, gas, oil, biomass, and so-called "opportunity" resources, rather than on a reduced subset of these resources; and that R&D directed at resolving our energy and environmental issues can find affordable ways to make energy conversion systems meet ever stricter environmental standards.

The U.S. electric power industry is currently undergoing a period of unprecedented change driven largely by electric utility restructuring, the availability of relatively low-cost natural gas, environmental regulation, and concerns about global climate change.

As the power industry deregulates, utilities, which were protected against competition and guaranteed returns on their investments, are now being forced to compete for market share and profits. Deregulation is changing the way the industry operates and invests in new facilities and technology. In a market-driven environment, power plant owners must be concerned about profitability and ability to finance new investments. This may cause owners to avoid technical risk and favor low-capital-cost alternatives.

Today's low cost of natural gas is causing power producers to favor low-capital-cost turbines over relatively high-cost coal-fired boilers for new capacity. The Energy Information Administration projects that in the United States about 360 gigawatts (GW) of new generation capacity will be needed in the next twenty years; it is estimated that 88% of this amount will be gas-fired and only 9% coal-fired (with the remaining 3% based on renewables).

The Clean Air Act of 1970 and subsequent amendments have brought about major reductions in emissions of the acid gases, i.e., sulfur and nitrogen oxides, and particulate matter for new coal-fired power plants. Existing plants are increasingly being required to cut emissions. Moreover, renewed concern about fine particulate matter (PM<sub>2.5</sub>) and its precursors (nitrogen and sulfur oxides), trace element emissions (especially mercury), and ozone (and its nitrogen oxides precursor) have created new pressures for cleaner plants. These pressures are unlikely to ease in the future; rather, each new generation of power plants will be expected to be cleaner than the previous.

Perhaps the biggest transformation will be driven by concern over global climate change. Emissions of greenhouse gases, especially CO<sub>2</sub> from fossil fuel use, may need to be reduced in the future. Although a portion of this reduction may be achieved in the United States through emissions trading and credits for investing in emissions reduction projects in developing countries, it is likely that substantial reductions in specific carbon emissions (e.g., carbon emissions per unit of useful work) will be necessary. Increasing the efficiency of power generation is a step in the right direction, but a technological solution that would provide sufficient reductions in carbon emissions has yet to be identified for fossil-fuel-fired systems.

Fossil fuels will continue to play a major role in supplying the electricity, transportation fuels, and chemicals for the United States well into the 21st century. If carbon emissions must be reduced, new and radically improved technology will be needed to keep from incurring large energy cost increases that will impede our economy. On the other hand, by taking the lead on developing the needed technology, we will not only meet the energy and environmental challenges we face, but at the same time make our economy stronger.

### C. Vision 21 and Its Relationship to the Current Fossil Energy R&D Program

The current DOE Fossil Energy R&D Program is addressing the development of (1) cost-effective power systems, based on both coal and natural gas individually and in combination, that are substantially cleaner and more efficient than systems in use today, and (2) technology for producing alternative sources of liquid transportation fuels and chemicals that are cost-competitive with equivalent petroleum products. Different kinds of power systems are being developed more or less independently, each based on a different technology: advanced pulverized coal combustion, gasification combined cycle, pressurized fluidized bed combustion, indirectly fired cycles, advanced turbine systems, and fuel cells. Activities in fuels technology include indirect and direct liquefaction, coprocessing coal with opportunity and “waste” materials to make liquid fuels, and natural-gas-to-liquids processing. Each technology development effort has its own set of objectives and time schedules for development and deployment.

Achieving the needed improvements in the environmental performance of fossil fuel-based power systems will require development of both new energy conversion technology and new systems that incorporate the technology. Any of the technologies under development cannot *individually* achieve the efficiency, environmental, and cost goals that will be needed in the early decades of the 21st century. Rather, a new approach is needed that allows integration of power, chemicals, and fuel-conversion-technology “modules” into systems that achieve the needed level of performance at affordable costs. We call the new approach “Vision 21.” The key difference between Vision 21 and the current R&D portfolio of the Office of Fossil Energy is that Vision 21 focuses on systems that integrate multiple technologies in order to achieve step improvements in performance and cost. Other differences are Vision 21's emphasis on market flexibility, multiple feedstocks and products, and industrial ecology.

### D. Solicitation Objectives

The objective of this Program Solicitation is to provide financial support to develop the technology and analytical capabilities needed for high-efficiency, low-emission energy plants (Vision 21 plants). Vision 21 Plants will produce power, transportation fuels, and/or chemicals, from fossil fuel feedstocks, alone or in combination with biomass and/or opportunity feedstocks such as petroleum coke, RDF, MSW, and sewage sludge. Developing the technology basis for Vision 21 plants will

- remove environmental barriers to fossil fuel use
- keep energy costs affordable
- produce useful coproducts including transportation fuels
- continue the U.S. leadership role in clean energy technology
- provide a clear route to achieving our energy, environmental, and economic objectives

Cooperative Agreements will be awarded to develop technology in the following Areas of Interest:

- A) the enabling and supporting technologies upon which the components and subsystems (“modules”) of Vision 21 plants depend

- B) systems integration capabilities needed to combine two or more modules in Vision 21 plants
- C) advanced plant design and visualization software leading to virtual demonstration of Vision 21 components, modules, and complete plants

It is anticipated that spinoff technologies, available as early as 2005, will also result from R&D supported by this solicitation. Spinoff technologies could include low-cost oxygen and hydrogen separation technology, gas purification and cleaning technology, better catalysts for producing fuels and chemicals from low-valued raw materials, more efficient and lower cost environmental control technology, improved low-cost manufacturing techniques for high-technology components, advanced turbine/engine combustion and materials technologies for enhanced system efficiency and performance, and improved materials for service under aggressive high-temperature conditions.

The primary objective of the Vision 21 program is to effectively eliminate all environmental concerns associated with the use of fossil fuels for producing electricity, transportation fuels, and high-value chemicals. The specific targets for performance, costs, and timing for Vision 21 plants are the following:

Efficiency--Electricity Generation	60% for coal-based systems (based on fuel HHV); 75% for natural gas-based systems (LHV) <sup>1</sup>
Efficiency--Fuels-Only Plant	When producing fuels such as H <sub>2</sub> or liquid transportation fuels alone from coal, 75% fuels utilization efficiency (LHV) <sup>1</sup>
Environmental	Atmospheric release of: --less than 0.01 lb/million Btu for sulfur and nitrogen oxides, --less than 0.005 lb/million Btu for PM, --less than one-half of emission rates for organic compounds listed in the "Utility HAPS report" <sup>2</sup> , --less than 1 lb/trillion Btu for mercury, -- 40-50% reduction in CO <sub>2</sub> emissions by efficiency improvement, 100% reduction with sequestration, i.e., complete CO <sub>2</sub> capture
Costs	Aggressive targets for capital and operating costs and RAM <sup>3</sup> ; products of Vision 21 plants must be cost-competitive with other energy systems with comparable environmental performance, including specific carbon emissions, when they are commercially deployed
Timing	Major benefits from improved enabling and supporting technologies, e.g., improved gasifiers, combustors, gas separation membranes, begin by 2006 or earlier; designs for most Vision 21 subsystems and modules available by 2012; Vision 21 commercial plant designs available by 2015



<sup>1</sup>The efficiency goal for a plant cofeeding coal and natural gas will be calculated on a pro-rata basis. Likewise, the efficiency goal for a plant producing both electricity and fuels will be calculated on a pro-rata basis.

<sup>2</sup>*Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generation Units - Final Report to Congress*, Volume 2, EPA-453/R-98-004b, 1998.

<sup>3</sup>Reliability, availability, and maintenance

## **SECTION II -- CONDITIONS AND NOTICES**

### **A. Award Instrument**

It is anticipated that multiple financial assistance awards, specifically Cooperative Agreements, will result from this solicitation. Awards are expected to be made in the three Vision 21 Areas of Interest described in Attachment A of this solicitation. There will be four distinct closing dates for applications (See paragraph P of this Section).

### **B. Cost Sharing**

The minimum cost share is 20%. In order to be recognized as allowable cost sharing, a cost must be otherwise allowable in accordance with the applicable Federal cost principles and DOE regulations governing cost sharing. Although not all-inclusive, provided below is a list of costs that are unallowable as project costs and, therefore, unallowable for cost sharing:

- Costs incurred in negotiating a Cooperative Agreement with DOE are not allowable as direct charges to the project.
- DOE shall not accept valuation for property sold, transferred, exchanged, or manipulated in any way to acquire a new basis for depreciation purposes or to establish a fair use value in circumstances that would amount to a transaction for the purpose of the Cooperative Agreement.
- DOE will not share in both the direct cost and depreciation on the same item. Depreciation is not allowable for cost sharing on any item previously charged to the project as a direct cost. For example, DOE will cost share the direct cost on equipment or facilities purchased or constructed for the project; but, will not also cost share the depreciation.
- Interest on borrowings (however represented) and other financial costs such as bond discounts, cost of financing and refinancing capital (net worth plus long-term liabilities), are unallowable project costs. This includes interest on funds borrowed for construction.
- Facilities capital cost of money shall be an unallowable cost on all real property or equipment acquired by or on behalf of the Participant in connection with the performance of the project.
- Previously expended research, development, or exploration costs are unallowable.
- Forgone fees, forgone profits, or forgone revenues are unallowable.
- Fee or profit paid to any member of the proposing team having a substantial interest in the project is unallowable. Competitive subcontracts placed with the prior written consent of the Contracting Officer and subcontracts for routine supplies and services are not covered by this prohibition.
- The value of patents and data contributed to the project is unallowable.

- Allowable costs under past, present, or future Federal Government contracts, grants or Cooperative Agreements may not be charged against this Cooperative Agreement. Likewise, the Participant may not charge costs allowable under this project, including any portion of its cost share to the Federal Government under any other contracts, grants, or Cooperative Agreements.
- Business losses are unallowable.

**C. Model Cooperative Agreement**

Cooperative Agreements awarded under this solicitation will be in the format of the Model Instrument included in this solicitation as Attachment B.

**D. Application Preparation Costs**

Applications to be prepared and submitted in response to this offering are an expression of interest only and do not obligate DOE to pay for the preparation or submission of an application.

**E. Commitment of Public Funds**

The Contracting Officer is the only individual who can legally commit the Government to the expenditure of public funds in connection with the proposed Cooperative Agreement. Any other commitment, either explicit or implied, is invalid.

**F. Availability of Funds**

Subject to the availability of funds in the technical areas proposed, DOE expects to provide \$5-10 million in each of the three years FY00, FY01, and FY02 for awards under this solicitation.

**G. Number of Awards**

The exact number of awards is unknown. Multiple and roughly equal numbers of awards in each of the three program Areas of Interest may be made if, after the evaluation process identified in Section IV of this document has been completed, sufficient applications prove to be meritorious. DOE anticipates making a total of approximately 10-15 awards over the open period for the solicitation. The Government reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in the response to this solicitation, and will award that number of financial assistance instruments that serve the public purpose and are in the best interest of the Government.

**H. Pre-Application Conference**

A pre-application conference is not planned.

**I. False Statements**

Applications must set forth full, accurate and complete information as required by this solicitation (including attachments). The penalty for making false statements in such documents is prescribed in 18 U.S.C. 1001.

**J. Reporting Requirements**

The recipient shall prepare all plans and reports specified in the Federal Assistance Reporting Checklist included in the Model Cooperative Agreement. See Section VI, Attachment B.

**K. DOE Issuing Office**

U. S. Department of Energy  
Federal Energy Technology Center  
Wallace Road  
P. O. Box 10940, MS 921-107  
Pittsburgh PA 15236-0940

**Point of Contact:** Contracting Officer: Raymond D. Johnson  
Telephone: (412) 386-6109  
e-mail address: [johnson@fetc.doe.gov](mailto:johnson@fetc.doe.gov)

E-mail is strongly encouraged for the submission of questions.

**L. Amendment of the Solicitation**

The only method by which any term of this solicitation may be amended is by an express, formal amendment to the solicitation generated by the issuing office. No other communication, whether oral or in writing, will amend or supersede the terms of this solicitation.

**M. Intentionally left blank**

**N. Catalog of Federal Domestic Assistance Number**

CFDA Number 81.089 applies.

**O. Applicant Eligibility**

Eligibility for participation in this Program Solicitation is considered to be full and open and all interested parties may apply.

Proposals submitted by, or substantially relying upon the technical expertise of, Federally Funded Research and Development Centers (FFRDC) and DOE Management and Operating (M&O) contractors will not be eligible for an award under this solicitation. Applicants are encouraged to maximize the use of private sector organizations in the performance of the proposed effort. However, a proposal that includes performance by an FFRDC or DOE M&O contractor(s) as a subcontractor will be evaluated and may be considered for award, provided that (1) the proposed use of any such entities is specifically authorized by the cognizant agency for the FFRDC or DOE for DOE M&O contractors, in accordance with the procedures established for the FFRDC or the M&O contractor; (2) the work is not otherwise available from the private sector; and **(3) the estimated cost of the FFRDC or M&O contractor work does not exceed 25 percent of the total estimated project cost. DOE reserves the right to fund the work through a DOE field work proposal or an interagency agreement.**

In addition to the proposal information to be provided by the applicant as set forth in Section III, the following requirements apply to those offerors that have a FFRDC and/or M&O contractor on their team:

1. Justification. The applicant shall submit a letter with its proposal which states that to the best of its knowledge, the work requested will not place the FFRDC or the DOE M&O contractor in direct competition with the domestic private sector, and that the proposed scope of work cannot be performed by any private entity.
2. Work Scope. The applicant shall submit a detailed scope of work that clearly identifies that portion of the proposed effort for which the expertise and ability to perform lie solely with a FFRDC or DOE M&O contractor. This detailed scope of work shall be provided as an appendix to the Technical Proposal.
3. Cost Information. The applicant shall provide cost information for that portion of the proposed work scope (see 2, above) to be performed by a FFRDC or DOE M&O contractor. The cost information shall be furnished in the same format and level of detail as prescribed for subcontractors. The estimated cost of the effort shall be clearly identified in the Cost Proposal.

**P. Time, Date and Place Applications Are Due**

Applications must be received at the following address:

U.S. Department of Energy  
 Federal Energy Technology Center  
 Attn: Raymond D. Johnson  
 Wallace Road  
 P. O. Box 10940, MS 921-107  
 Pittsburgh PA 15236-0940

ALL APPLICATIONS MUST BE RECEIVED BY 2:00 P.M., LOCAL TIME, ON NOVEMBER 30, 1999, FOR THE FIRST EVALUATION; MARCH 31, 2000; JULY 31, 2000; AND SEPTEMBER 29, 2000, RESPECTIVELY, FOR THE SECOND, THIRD, AND FOURTH EVALUATION CYCLES.

Applications that are not received by 2:00 p.m., local time, on November 30, 1999, will be retained and evaluated during the second evaluation. Likewise, applications not received by 2:00 p.m., local time, for subsequent due dates will be retained and evaluated during the subsequent evaluation period, if any. However, applicants are encouraged to submit applications at the earliest possible evaluation period.

**Q. Application Delivery Information**

The outside of the package containing the application should clearly indicate the Solicitation Number and the number of the Program Area of Interest against which the application is being submitted. Copy No. 1 of Volumes I and II should contain the signed original of all documents requiring signature by the applicant. Use of reproductions of signed originals is authorized in all other copies of the application. (See Section III, Paragraph C.)

**R. Telegraphic and E-Mail Applications**

Telegraphic applications will **NOT** be considered, although applications may be amended by telegraphic notice provided such notice is received prior to the date and time specified for receipt. The term "Telegraphic" includes both mailgrams and facsimile submissions. Applications submitted by e-mail or other electronic means will **NOT** be considered.

**S. Late Applications, Amendments of Applications and Withdrawals of Applications**

1. An application or amendment of an application shall be timely if it is received at the location on or before the applicable evaluation cycle deadline date and time specified in Paragraph P of this section.
2. Applications or amendments of applications may be withdrawn by written notice at any time before award. Written notice includes e-mails and facsimiles. An authorized representative may withdraw applications in person, if the representative's identity is made known and the representative signs a receipt for the application before award.

**T. Fee and Profit**

Fee or profit will not be paid to the recipients of financial assistance awards resulting from this solicitation.

**U. Small and Small Disadvantaged Business**

DOE strongly encourages small and small disadvantaged business participation in its programs and in this solicitation. It is DOE policy to give these business concerns a reasonable opportunity to participate fairly and equitably.

**V. Responsible Applicants**

The standards for responsible applicants set forth at 10 CFR 600.30 apply. DOE reserves the right to make a pre-award review of the applicant's ability to manage and account for a DOE Cooperative Agreement if awarded, or to determine compliance with generally applicable requirements.

**W. Treatment of Proprietary Information**

Applications submitted in response to this solicitation may include technical data and other data, including trade secrets and/or privileged or confidential commercial or financial information, which the applicant does not want disclosed to the public or used by the Government for any purpose other than application evaluation. To protect such data, the applicant shall specifically identify each page including each line or paragraph thereof containing the data to be protected and insert a page following the cover letter of the application (SF-424) with the following notice:

**NOTICE**

The data contained on page(s) \_\_\_\_\_ of this application have been submitted in confidence and contain trade secrets and/or privileged or confidential commercial or financial information, and such data shall be used or disclosed only for evaluation purposes, provided that if a Cooperative Agreement is made as a result of or in connection with the submission of this application, the Government shall have the right to use or disclose the data herein to the extent provided in the Cooperative Agreement. This restriction does not limit the Government's right to use or disclose data that it obtains without restriction from any source, including the applicant.

**X. Unnecessarily Elaborate Applications**

Unnecessarily elaborate brochures or other presentations beyond those sufficient to present a complete and effective response to this solicitation are not desired and may be construed as an indication of the applicant's lack of cost consciousness. Elaborate art work, expensive paper and bindings, and expensive visual and other presentation aids are neither necessary nor wanted.

**Y. Evaluation Personnel**

Applications will be evaluated in accordance with the criteria set forth in Section IV of the solicitation. It is expected that all applications submitted under this solicitation will be evaluated by Federal personnel only. However, the Government reserves the right to utilize non-Federal evaluators in the event a situation would require such expertise. Any review performed by non-Federal evaluator(s) will require the prior consent of the applicant. Applicants are further advised that DOE may be unable to consider a proposal from an applicant that withholds such consent.

**Z. DOE Treatment of Application Information**

In the event personnel from other Federal agencies, DOE contractors, or other consultants are utilized to assist DOE in the evaluation of applications, DOE will obtain assurances, in advance, from all evaluators that proprietary information contained in an application will be kept confidential.

**AA. Application Clarification**

DOE reserves the right to require applications to be clarified or supplemented to the extent considered necessary either through additional written submissions or oral presentations.

**BB. Award Without Discussions**

Notice is given that award may be made after few or no exchanges, discussions or negotiations. Therefore, all applications should be submitted initially on the most favorable technical, cost and other terms to the Government that the applicant can submit.

**CC. Government Right to Reject or Negotiate**

The Government reserves the right, without qualification, to reject any or all applications received in response to this solicitation and to select any application, in whole or in part, as a basis for negotiation and or award.

**DD. Anticipated Selection Dates**

The following reflects the anticipated selection dates by evaluation period. Cooperative Agreements are expected to be awarded within 90 calendar days following the selection.

<u>Evaluation Period</u>	<u>Anticipated Selection Date</u>
1	January 31, 2000
2	May 31, 2000
3	September 29, 2000
4	January 31, 2001



**EE. Information of Award**

Written notice to unsuccessful applicants and Cooperative Agreement award information will be promptly released in accordance with DOE regulations applicable to financial assistance awards.

**FF. Effective Period of Application**

All applications are required to remain in effect for at least 180 calendar days from the due date to which the applications are responsive.

**GG. Disposition of Applications**

Applications will not be returned except for timely withdrawals or as otherwise specified in this section.

**HH. Executive Order 12372**

Applications submitted in response to this solicitation are not covered by Executive Order 12372--Intergovernmental Review of Federal Programs.

**II. Period of Performance**

For projects in any of the three Areas of Interest, it is anticipated that the duration of activities will not exceed three years. Projects can be less than three years in duration. Awards longer than one year will be subject to the availability of funds. DOE anticipates that continuation of technology development beyond three years will be the subject of separate solicitations.

**JJ. Simpson-Craig Amendment**

Organizations that are described in Section 501(c)(4) of the Internal Revenue Code of 1986 and engage in lobbying activities after December 31, 1995, shall not be eligible for the receipt of Federal funds constituting an award, grant, or loan. Section 501(c)(4) of the Internal Revenue Code of 1986 covers:

“Civic leagues or organizations not organized for profit but operated exclusively for the promotion of social welfare, or local associations of employees, the membership of which is limited to the employees of a designated person or persons in a particular municipality, and the net earnings of which are devoted exclusively to charitable, educational or recreational purposes.”

Lobbying activities are defined broadly to include, among other things, contacts on behalf of an organization with specified employees of the Executive Branch and Congress with regard to Federal legislative, regulatory and program administrative matters.

Applicants must submit the Simpson-Craig Amendment Representation found in the assurance submission requirements of this solicitation (See Section III, C.1, B., 3.).

**KK. Minority Economic Impact Loan**

Under this solicitation, no DOE Minority Economic Impact (MEI) loans are available.

**LL. Debriefings**

Applicants may submit an application more than once (i.e., after application is rejected) within the solicitation period. Each unsuccessful applicant will be offered the opportunity for an explanation or debriefing as to why the application was not selected. Debriefings will be conducted at the earliest feasible time.

**MM. Teaming**

DOE encourages teaming of industrial firms with other kinds of organizations. Compared to individual organizations, multidisciplinary teams are often better equipped to identify and address the important issues associated with the development of new technology.

**NN. Additional Eligibility Requirements of the Energy Policy Act of 1992**

Applications proposing technology development that falls under Titles XX-XXIII of the Energy Policy Act (P.L. 102-486) are subject to the eligibility requirements stated in Section 2306 of the Act. Such technologies include but are not limited to fuels cells, advanced turbines and natural gas end-use technologies. An applicant private sector firm shall be eligible to receive financial assistance under this section only if it is a United States-owned company, or the firm is incorporated in the United States and has a parent company that is incorporated in a country which affords treatment to United States-owned companies that is comparable to treatment the United States affords foreign-owned companies in the following areas: access to government-supported joint ventures in energy research and development, local investment opportunities, and protection of intellectual property.

In addition, the applicant must show that the project, as a whole, is in the economic interest of the United States. To fulfill this requirement, the applicant must consider the contributions of all participants in the project, including any contractors or suppliers that the applicant has named and relied upon in its application. This can be evidenced by (1) investment in the United States in research, development, and manufacturing, such as the manufacture of major components or subassemblies in the United States; (2) significant contributions to employment in the United States; (3) agreement with respect to any

technology arising from assistance provided under this solicitation to promote the manufacture within the United States of products resulting from that technology, taking into account the goals of promoting the competitiveness of United States industry, and to procure parts and materials from competitive suppliers.

For-profit organizations proposing work under Titles XX-XXIII shall complete the EPA Act Section 2306 certification provided in the Financial Assistance Assurance Package (See Section III, C., C.1, B.3.) of the solicitation. In the event that information provided in the application is insufficient for DOE to make the required eligibility determination, DOE may request additional information from the applicant.

**OO. Performance of Work in the United States**

As a condition of award under this solicitation, applicants must agree that at least 75% of the direct labor cost for the project (including subcontractor labor) will be incurred in the United States unless the applicant can demonstrate to the satisfaction of DOE that the United States economic interest will be better served through a greater percentage of the work performed outside the United States. For example, an applicant may provide evidence that expertise to develop a technology exists only outside the United States, but that ultimate commercialization of the technology will result in substantial benefits to the United States such as increased employment, increased exports of U.S.-manufactured products, etc.

**PP. National Environmental Policy Act Strategy (JULY 1999)**

The National Environmental Policy Act of 1969 (NEPA) establishes a national policy to ensure that consideration is given to environmental values and factors in Federal planning and decision making. The Department of Energy's policy is to comply fully with the letter and spirit of NEPA. To ensure that environmental factors are considered in the decision making process and to promote environmentally responsible decisions, DOE incorporates NEPA requirements early in the planning process for proposed actions. Consistent with Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508) and DOE NEPA regulations (10 CFR Part 1021), an overall strategy for compliance with NEPA has been developed. This includes performing project-specific environmental reviews of environmental issues pertinent to each proposed project before projects are selected, followed by site-specific environmental reviews of each project after DOE selection. It is probable that most, if not all, of the projects proposed under this solicitation will not have a significant effect on the environment, and as such, in accordance with DOE NEPA regulations, will be candidates for "categorical exclusions" (CX) and thus will not require the preparation of an environmental assessment or environmental impact statement. A CX is prepared for actions that obviously do not have a significant environmental impact. To qualify for a CX, a project must be an excluded action and meet certain site-specific criteria. These criteria concern adverse effects on flood plains, wetlands, archeological sites, Indian lands, etc. For further information on categorical exclusions, see 10 CFR Part 1021.410.

No action taken by DOE with regard to any application prior to the completion of the site-specific analysis, including project selection or award, shall be a final decision for purposes of compliance with NEPA.

**QQ. Pre-Selection Project-Specific Environmental Questionnaire**

For applications that undergo comprehensive evaluation, DOE will review project-specific environmental information supplied by the applicant on the Environmental Questionnaire which is submitted as part of Volume I, Business and Financial application.

**RR. Post-Selection Environmental Review**

Soon after selection, depending on the information necessary to satisfy NEPA, applicants may be requested to provide additional environmental information that is more detailed than that provided on the Environmental Questionnaire of this solicitation. This detailed site- and project-specific information may be used as the basis for site-specific NEPA documents prepared by DOE for each selected project. Such NEPA documents shall be prepared, considered, and published by DOE in full conformance with the requirements of the CEQ regulations and 10 CFR Part 1021.

**SS. Post-Award Environmental Monitoring**

Each resulting award will specify the monitoring and reporting requirements necessary to ensure compliance with applicable environmental regulations, and permits obtained from Federal, State and local Government agencies and DOE guidelines on NEPA.

**TT. Notice Regarding Eligible/Ineligible Activities**

Eligible activities under this program includes those which describe and promote the understanding of scientific and technical aspect of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information relating to potential, planned or pending legislation.

### **SECTION III -- APPLICATION PREPARATION INSTRUCTIONS**

#### **A. Application Requirements**

The application shall be prepared as set forth herein to provide a standard basis for evaluation and to ensure that each application will have a uniform format. These instructions are not to be included in your application.

Applications shall be prepared in accordance with this section. To aid in evaluation, applications shall be clearly and concisely written as well as being neat, indexed (cross-indexed as appropriate) and logically assembled. All pages of each part shall be appropriately numbered and identified with the name of the applicant, the date and the solicitation number to the extent practicable.

If it is determined during the initial review that an application should be considered under a different Program Area of Interest within this solicitation, the Government reserves the right to review the application under that area.

Each application should clearly demonstrate the applicant's capability, knowledge, and experience in regard to the requirements described herein. Failure to respond or follow the instructions regarding the organization and content of the application may result in the application being deemed unacceptable.

Applicants should fully address the requirements of the solicitation and not rely on reviewers' presumed background knowledge. DOE may return an application that does not include all information and documentation required by statute, 10 CFR Part 600, or the solicitation when the nature of the omission precludes review of the application.

During the review of a complete application, DOE may request the submission of additional information if the information is essential to evaluate the application.

#### **B. Funding, Scope, and Appropriate Activities for Proposed Projects**

DOE's maximum share will be \$2.5 million per project for projects in area of interest A (the enabling and supporting technologies upon which the components and subsystems ("modules") of Vision 21 plants depend), and \$1.5 million per project for projects in Areas of Interest B (systems integration capability needed to combine two or more modules in Vision 21 plants) or C (advanced plant design/visualization software).

DOE believes that analytical work and small-scale experimental studies and testing are appropriate for projects supported by this solicitation. Experimental work may be a more likely activity for area of interest A than for B; likewise, experimentation may be more likely for B than for C. Examples of *enabling* and *supporting* technologies that are expected to be important in developing Vision 21 plants are given in Attachment A,

Program Areas of Interest. Any of these technologies, and perhaps others, would be appropriate for area of interest A. A further description of systems integration and plant design/visualization software topics is also given in Attachment A.

DOE recognizes that technology and systems integration and plant design/visualization methodologies appropriate for this solicitation are likely to span various stages of development ranging from a concept on paper to a body of work for which substantial analytical work and experimentation have already been completed. Regardless of the state of development, for the purposes of this solicitation, the proposed project should comprise the logical next steps in the research and development of the technology or methods. Any scale of work up to and including proof-of-concept can be proposed, but proof-of-concept projects would quite likely require increased levels of cost sharing since maximum DOE funding would remain at \$2.5 million for each area A project and \$1.5 million for each area B or C project.

DOE's intent is to eventually advance technology development for use in Vision 21 plants through the successful conduct of a "proof-of-concept" test. However, DOE recognizes that reaching this end point is likely to require a duration of effort and funding support beyond those provided by this solicitation. It is anticipated that continued development will be supported through subsequent solicitations.

### C. **Overall Arrangement of Application**

The application shall consist of two physically separate volumes, individually titled as follows:

<u>VOLUME</u>	<u>ORIGINAL</u>	<u>NUMBER OF COPIES</u>	<u>ELECTRONIC VERSION</u>
Volume I - Business and Financial Application	1	2	1
Volume II - Technical Application	1	4	1*

\*The electronic version of the technical application shall be submitted in WordPerfect 6.1 or Adobe Acrobat Portable Document Format (PDF).

**The Originals of all Volumes and the two copies of Volume I must be wrapped as one package; all copies of Volume II must be wrapped as a separate package. The outside of each package must clearly identify the solicitation number, the program Area of Interest and the volumes in the package.**

## C.1 Volume I--Business and Financial Application

### A. General

1. Volume I, Business and Financial Application, consists of the required application coversheet, application forms, assurances package, budget pages, environmental questionnaire, other statements of the offeror, exceptions and deviations, and any other business and financial information.
2. The application identified as the original shall contain all of the original signatures of the documents requiring signature by the applicant. Use of reproductions of signed originals is authorized in all other copies of the application.
3. The Applicant shall provide a minimum cost share as described in Section II of this solicitation.
4. All forms needed for preparation of Volume I are found on the FETC website at: <http://www.fetc.doe.gov/business/forms/forms.html> in either WordPerfect or PDF, and are referenced under Section V of the solicitation. Please note that all forms were developed using WordPerfect 6.1 and formatted for printing using an HP LaserJet IIISi printer. Questions on completion of the forms should be addressed to the Contracting Officer.

### B. Format and Content

Volume I, Business and Financial Application, shall include the following documents (in the order listed):

1. Volume I - Business and Financial Application Coversheet

An Application Coversheet for Volume I shall be prepared that presents the solicitation number; applicant business name, address and point of contact; proposed Area of Interest; and provided with each copy of Volume I.

2. Application for Federal Assistance -- Standard Form 424
3. Financial Assistance Assurance Package -- Filename: **assure.fa**
  - a. FETC Assurance, Non-Construction Programs -- FETC F 4220.38
  - b. Assurances - Non-Construction Programs -- Standard Form 424B
  - c. Additional Representations and Certifications for Federal Financial Assistance -- FETC F 4220.35
  - d. Disclosure of Lobbying Activities -- Standard Form - LLL
  - e. Assurance of Compliance -- Nondiscrimination in Federally Assisted Programs -- DOE F 1600.5

#### 4. Budget Page

Complete appropriate budget form as indicated below along with all supporting cost data as specified by the instructions. The applicant shall provide a detailed budget, for the entire period of support, with written justification sufficient to allow evaluation of the itemized list of costs provided. Failure to provide the detailed cost information as required will result in an incomplete proposal.

University Applicants: Budget Page -- DOE F 4620.1

Other Applicants: Federal Assistance Budget Information -- DOE F 4600.4

#### 5. Environmental Questionnaire -- Filename: **nepasol**

#### 6. Economic Benefit to the United States

Applicants must provide a separate discussion, not exceeding five (5) pages in length, explaining how the proposed work will benefit the economic interest of the United States. This may be evidenced by (1) investments in the United States in research, engineering, and manufacturing (including, for example, manufacture of major components or subassemblies in the United States; (2) significant contributions to employment in the United States; and (3) agreements to promote the manufacture within the United States of products resulting from technology developed under the project. A description of the quantitative benefits supported by a convincing rationale is preferable to a qualitative discussion. DOE expects that this information will be realistic and constitute a sincere commitment by the applicants to promote economic benefits for the United States. **(Note: This information is similar to information requested in the Representations and Certifications from applicants proposing work under Titles XX-XXIII of the Energy Policy Act of 1992. However, this information is required from all applicants and will be one of the factors the Department uses in selecting applications for award.)**

#### 7. Exceptions and Deviations

- a. The applicant shall identify and explain any exceptions or deviations taken or conditional assumptions made with respect to the model Cooperative Agreement, the requirements of this section, and any other matters associated with this solicitation.
- b. Any exceptions taken must contain sufficient amplification and justification to permit evaluation. The benefit to the Government shall be explained for



each exception taken. Such exceptions will not, of themselves, automatically cause an application to be termed unacceptable. A large number of exceptions, or one or more significant exceptions not providing benefit to the Government, however, may result in rejection of your application(s) as unacceptable.

## C.2 Volume II--Technical Application

### A. General

The proposer shall include a technical discussion in the format specified below. This format relates to the technical evaluation criteria, Section IV - E. Proposers are asked to follow the outline shown on the following page. Alternate heading names and additional headings may be included as desired. The “Technical Volume” should not exceed **50 pages (single spaced) in length**. Submissions of greater length will be judged by DOE to detract from the quality of the proposal.

### B. Format and Content.

In order to produce a comprehensive proposal for this solicitation, the applicant is required to address, at a minimum, the areas listed below. To help facilitate the review process and to ensure addressing all the review criteria, the applicant shall use the following Table of Contents when preparing the technical proposal.

### TABLE OF CONTENTS

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List of Tables .....	iii
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5. FACILITIES AND EQUIPMENT .....	#

## APPENDICES

A. RESUMES .....	A1
B. LETTERS OF COMMITMENT .....	B1
C. ADDITIONAL PERTINENT PUBLICATIONS (if any) .....	C1

**Public Abstract:** Provide a non-proprietary summary of the proposed project that (1) includes project benefits and (2) is suitable for public release. The Public Abstract shall not exceed 750 words.

**Technical Merit:** Describe the promise of the technology for changing the way plants utilizing fossil fuels to produce electricity, chemicals, and fuels are designed, built, or operated. If the proposed technology involves hardware, describe attributes of the device or module being proposed, such as environmental performance, efficiency of operation, or expectations of low-cost producibility. Explain the physical principles upon which the device is based. If the proposal is for systems integration or plant design/visualization methodology, explain what the proposed techniques/software will accomplish and show their significance to achieving goals of the Vision 21 program. Compare the performance of the proposed technology or methodology to current commercial practice for achieving comparable ends and, if appropriate, to other well known technical approaches that are in development. Explain how the proposed technology or methodology represents an important improvement. If available, show estimates of market share that the proposed technology is expected to capture.

Explain how the proposed technology addresses all applicable “Performance Targets for Vision 21 Plants.” If the proposed technology is for an entire process, performance targets for thermal efficiency, emissions, and costs should be addressed. If the proposed technology is for a device or module that would be part of a Vision 21 plant, describe how its use would help achieve emission, efficiency, and cost targets of the Vision 21 program. For proposers of design methodology or software, similarly explain how the proposed technology will help achieve all applicable performance targets.

**Reducibility to Practice:** Provide a description of how the proposed technology or methodology functions. If it will aid DOE’s understanding and appreciation of the proposed technology, show it as part of a Vision 21 plant that includes equipment in addition to that being proposed. If the proposal involves development of hardware, provide preliminary process flow diagram(s) of the device in a favorable configuration for commercial use.

Explain the basic characteristics of the proposed device, systems integration methodology, or design/visualization software, and the developmental or engineering approach, or design philosophy, to be pursued. Review the developmental history of the proposed technology or methodology. Describe successful tests and their significance. Explain major advances that have already been achieved and challenges that remain before the proposed technology or methodology will be ready for commercialization demonstration. If early commercial deployment (“spinoffs”) is anticipated, describe how and when spinoffs may occur and their likely impact. Explain in a general way, without making specific reference to the Work Plan, why and how it is expected that

the device, methodology, or software can achieve successful proof-of-concept development by means of efforts subsequent to the proposed project.

If the proposed technology results in the collection of CO<sub>2</sub> that is generated in a Vision 21 plant, calculation of thermal efficiency for the process should reflect this fact. Proposers of processes that result in CO<sub>2</sub> collection are encouraged to estimate what the efficiency penalty is for collecting the CO<sub>2</sub>, and what a nominal equivalent efficiency without collection would be for their process.

**Project Plan:** Provide a Statement of Work, Test Plan if appropriate, and description of Project Details as specified in the Outline.

The proposed project must establish the likelihood of technical feasibility and marketability for the proposed technology. Technical feasibility will be established by a combination of successful experimentation, and analytical computation and modeling that indicate good prospects for developing a device that will function as envisioned. For projects in which further technology development beyond the proposed scope will be required, the nature and extent of the further development should be outlined.

For projects in which substantial analytical work and experimentation have already been completed, describe how the proposed work comprises the logical next steps in the research and development of the proposed technology or methodology.

For proposers developing technology modules for Vision 21 plants, the proposed work should include systems analysis that describes use of the proposed technology in a hypothetical commercial embodiment in a Vision 21 plant. Small-scale experimental development and testing are acceptable.

**Technical and Management Capabilities:** The proposing team shall describe its capabilities by including discussions that:

- a) describe the credentials, capabilities, and experience of key personnel by including, in an appendix, resumes and other information consistent with and appropriate to the role each will play in the proposed project;
- b) document relevant prior or current corporate experience of participating organizations;
- c) show responsibilities and lines of authority among the various project participants, including subcontractors if applicable, and the roles of key personnel and percentages of their time devoted to the proposed project;
- d) include a list and brief description of relevant prior or current contracts or grants for the last five years.

**Facilities:** The proposer shall describe the type, quality, availability, and appropriateness of the proposed facilities and equipment. If extensive equipment is to be utilized, an itemized listing may be included in an appendix to supplement the discussion presented in the body of the proposal. In considering long-range equipment and testing facility needs, proposers should note the reference to DOE's Power Systems Development Facility in Attachment A of this solicitation.

## **SECTION IV -- EVALUATION AND SELECTION**

### **A. Introduction**

This section contains the evaluation approach as well as the individual criteria to be used in the evaluation of applications.

### **B. General**

It is the policy of DOE that any financial assistance be awarded through a merit-based selection process which means a thorough, consistent and independent examination of applications based on pre-established criteria by persons knowledgeable in the field of the proposed project.

### **C. Preliminary Evaluation**

Applications that fail to propose a minimum cost share of 20 percent or fail to comply with any other mandatory requirement of the solicitation may be eliminated from consideration prior to comprehensive evaluation. In the event that an application is eliminated, a notice will be sent to the applicant stating the reason(s) that the application will not be considered for negotiations leading to award under this solicitation.

### **D. Comprehensive Evaluation**

Applications passing the preliminary evaluation shall be subjected to a comprehensive evaluation in accordance with the evaluation criteria listed in this section. Although the technical criteria are most important, the other criteria will be used by the selection official to determine the best mix of projects to achieve program objectives.

### **E. Technical Evaluation Criteria**

The Technical Evaluation is conducted to determine the merits of the technical application with regard to the potential success of the project. Comprehensive evaluation results in a numerical score for each application against each of the technical evaluation criteria. Technical proposals submitted in response to this solicitation will be evaluated and scored in accordance with the criteria listed below:

#### **Criterion 1:** Technical Merit of the Proposed Technology (40%)

Degree to which the proposed technology or methodology, if successfully developed as proposed, represents an important advancement toward achieving the objectives of the Vision 21 program. (The proposed technology/methodology must be based on sound scientific and engineering principles.)

**Criterion 2:** Reducibility to Practice (25%)

Quality of engineering development work to date; quantity and quality of supporting modeling and experimental results; depth of understanding evidenced by the proposer of physical phenomena critical to successful operation of the proposed technology; likelihood of early commercial deployment, or “spinoffs.”

**Criterion 3:** Formulation and Organization of Project Plan (20%)

Appropriateness, rationale, and completeness of the proposed Statement of Work to meet the identified needs; appropriateness of scale of equipment, scope, and duration of the test program; adequacy of project and milestone schedules, Work Breakdown Structure, staffing plan, and reporting activities.

**Criterion 4:** Technical and Management Capabilities (15%)

Capabilities, experience, and degree of involvement in the project of key technical and management personnel; corporate experience of team members in similar technology development activities; clarity and logic of project organization with respect to responsibilities and authorities of project participants, including major subcontractors, and teaming arrangements.

**F. Environmental, Health, Safety, and Security Evaluation Criteria**

The Environmental Assessment Questionnaire will be evaluated in order to (1) determine adequacy and completeness of furnished data, and (2) assess the applicant’s awareness of project-related requirements, including mitigating any project-related risks and impacts.

**G. Cost Information Evaluation Criteria**

Cost proposals will not be point scored but will be evaluated in accordance with the following criteria:

- (a) Reasonableness and appropriateness of costs.
- (b) Required cost share and/or in-kind contributions.

Selection of a proposal for award may involve a determination of cost effectiveness, e.g., whether a technically superior proposal is worth any additional associated cost. Proposals that offer levels of cost sharing above the minimum may be considered by the Government to offer advantageous cost effectiveness.

**H. United States Economic Benefit Criterion**

Applicants’ United States-benefits discussion will not be point scored but will be used by the Department to determine the relative economic benefit the United States can expect to derive from a proposed project.

**I. Program Policy Factor**

Program Policy Factor is one factor that is not indicative of the applicant's individual merit, but is relevant and essential to the process of choosing which application(s) will best achieve the program goals. The following Program Policy Factor shall be considered by the Source Selection Official in the selection process.

Programmatic Balance: It may be desirable to select one or more projects that represent a diversity of technology approaches and methods. Further, DOE desires to make roughly equal numbers of awards in each of the three Areas of Interest.

**J. Basis For Selection and Award**

In selecting applications for award, DOE shall consider the evaluation criteria and the Program Policy Factor set forth in the solicitation to arrive at the best mix of projects that achieve the solicitation program objectives. DOE reserves the right to select all or a portion of an application that meets these objectives.

## **SECTION V -- ELECTRONIC FORMS AND/OR DOCUMENTS**

- A. All forms needed for preparation of Volume I are found on the FETC website at: **<http://www.fetc.doe.gov/business/forms/forms.html>** in either WordPerfect or Portable Document Format (PDF). Furthermore, a listing of the Volume I forms is presented in the table below. Please note that all forms were developed using WordPerfect 6.1 and formatted for printing using an HP LaserJet IIISi printer.
- B. To view and print PDF files from the FETC website, one needs to first download and install the free Adobe Acrobat Reader from Adobe Systems, Inc. See our getting started instructions for help. The WordPerfect 6.1 files have been put into self-extracting ZIP files. See our instructions on Unzipping a "Self-Extracting" file for further assistance. For assistance with any of the electronic forms or documents, please send an e-mail to the attention of the Contracting Officer at "**[johnson@fetc.doe.gov](mailto:johnson@fetc.doe.gov)**," or by telephone at (412) 386-6109 (Also reference trouble shooting page).

Note: Forms downloaded in WordPerfect are fillable; however, care should be taken to maintain the original format.

<b>Form #</b>	<b>Title</b>	<b>WP6.1 File</b>	<b>PDF File</b>
assure.fa	Financial Assistance Assurance Package	assurefa.exe	assurefa.pdf
D1600.5	*Assurance of Compliance	1600-5.exe	1600-5.pdf
D4600.4	Federal Assistance Budget Information	4600-4.exe	4600-4.pdf
D4620.1	Budget Page	4620-1.exe	4620-1.pdf
F4220.35	*Additional Representations & Certifications for Federal Financial Assistance	4220_35.exe	4220_35.pdf
F4220.38	*FETC Assurance, Non-Construction Programs	4220_38.exe	4220_38.pdf
nepasol	Environmental Questionnaire for Solicitations	nepasol.exe	nepasol.pdf
SF424	Application for Federal Assistance	424.exe	424.pdf
SF424b	Assurances - Non-Construction Programs	424b.exe	424b.pdf
SFLLL	*Disclosure of Lobbying Activities	lll.exe	lll.pdf
*Form also contained within form file: <u>assure.fa</u> . Provided separately for convenience.			



## SECTION VI - ATTACHMENTS

### ATTACHMENT A

#### **PROGRAM AREAS OF INTEREST**

DOE is interested in developing the technology basis for Vision 21 energy plants and improved design and simulation tools for system design and representation. The technology basis sought includes designs for the technology modules or subsystems that constitute Vision 21 plants and systems integration know-how. The list of enabling and supporting technologies (see below), identified by DOE with the help of industry, academic, and Government stakeholders, indicates the kinds of technology modules considered to be important for Vision 21 plants. An example of a technology module is a gas-separation subsystem for separating air into oxygen- and nitrogen-rich streams. Systems integration knowledge is required to design and construct complete plants from technology modules. Although the DOE's intent is to focus on technology module development rather than on specific plant configurations, specific arrangements of modules may need to be studied in order to acquire knowledge of systems integration techniques.

Computer models for individual technology modules and for complete Vision 21 plants need to be developed. These models will be used to reduce development costs by minimizing the number of scales at which new technologies will need to be tested, to aid in design and scale-up, and to increase confidence that new designs will meet performance expectations.

Vision 21 builds on the current DOE programs for Clean Coal Technology Demonstration (technology for near-term application, 0-5 years) and R&D (technology for mid-term application, 5-10 years). The planning horizon for Vision 21 is approximately 15 years. The Vision 21 Program Plan (on the FETC Internet website, under Products) provides guidance on the future direction of the program and on potential topics for future solicitations.

Through this solicitation, DOE plans to award Cooperative Agreements to develop technology in the following Areas of Interest:

- A) the enabling and supporting technologies upon which the components and subsystems ("modules") of Vision 21 plants depend
- B) systems integration capabilities needed to combine two or more modules in Vision 21 plants
- C) advanced plant design and visualization software leading to virtual demonstration of Vision 21 components, modules, and complete plants

With this solicitation, DOE is seeking proposals in any of the technical areas described below *or in any other area* that the proposer believes can make an important contribution to achieving the Vision 21 program objectives. The inclusion of the list of enabling and supporting technologies is not intended to preclude work on other technologies important to Vision 21.

DOE has identified technologies that are expected to be important in developing Vision 21 plants. *Enabling technologies* are those upon which the modules or subsystems that form the building blocks of a Vision 21 plant depend. Enabling technologies include, but are not limited to:

- gas separation, e.g., membranes that can be used to separate oxygen from air, hydrogen from syngas, and CO<sub>2</sub> from combustion products
- high-temperature heat exchangers, e.g., alloy exchangers capable of heating high-temperature steam or air for use in advanced, high-efficiency cycles
- fuel-flexible, thermally efficient gasification to allow the use of low-cost feedstocks, e.g., municipal waste, petcoke, and biomass, with coal
- gas stream purification systems capable of operating at high temperatures for removing sulfur compounds and other constituents that may corrode or erode downstream components, e.g. turbines, or poison downstream catalysts
- high-performance combustion systems, both suspension-fired and fluidized bed, including ultra-low-NO<sub>x</sub> combustion and combustion systems that burn fuels in O<sub>2</sub>/CO<sub>2</sub> mixtures and produce exhaust streams containing only CO<sub>2</sub> and water
- fuel-flexible combustion turbines and engine systems, especially turbines and engines capable of operating on coal-derived gases or hydrogen; fuel cell/turbine-engine hybrids capable of 70-80% efficiency; advanced combustion turbines, including ceramic turbines and engines; advanced steam turbines
- fuel cells, e.g., high-efficiency, low-cost fuel cells; cascaded fuel cell systems capable of operating at multiple temperatures and pressures; fuel cells bottomed by fuel cells; fuel cell/turbine hybrids; new, low-cost, fuel cell concepts capable of approaching \$100/kilowatt stack costs and, when incorporated into a system, 70-80% system efficiency
- advanced fuels and chemicals development: systems and catalysts for fuels and chemicals production; hydrogen production and storage

*Supporting technologies* have also been identified. These are cross-cutting technologies that may be important in several Vision 21 subsystems and components, and in designing Vision 21 plants. Supporting technologies include, but are not limited to:

- advanced materials for high-temperature applications in aggressive environments, e.g., boiler tubes for high-temperature steam bottoming cycles, and very high-temperature (>2000°F) heat exchangers for use in indirectly fired cycles and other applications, as well as functional materials needed for gas cleanup or separation
- advanced controls and sensors to control highly integrated Vision 21 plants; new algorithms that utilize state-of-the-art hardware to assure reliable performance, optimum plant efficiency, and low emissions
- environmental control technology for low-NO<sub>x</sub> combustion and control of fine particulate matter and management of byproducts from Vision 21 plants; improved concepts for CO<sub>2</sub> capture and separation systems

- advanced manufacturing and modularization techniques to reduce costs and improve quality. (Modular design is desired where it can reduce costs by maximizing shop fabrication and minimizing field construction, while maintaining or increasing flexibility in plant design.)

*Systems Integration* prescribes how to combine high-performance technology modules into safe, reliable, economic Vision 21 plants and, as such, is a critical part of the Vision 21 program. Systems integration can be divided into three key subelements: systems engineering, dynamic response and control, and industrial ecology. Systems integration topics of interest to DOE include:

- systems engineering and compatibility issues related to linking Vision 21 modules and components, e.g., gasifiers with combustion turbines, fuel cells, and gas cleanup devices; development of design modifications and interconnections for major subsystems and components
- dynamic response and control of Vision 21 modules and integrated plants; studies of the transient response of subsystems and total plants to changes in load and other operating parameters, startup and shutdown, and upset conditions including component and subsystems failures; modeling of the dynamic response of Vision 21 systems; development of control strategy for integrated Vision 21 plants, including investigation of complex control theory needed for operation, and the computer software and process control hardware necessary to implement the strategy
- application of industrial ecology principles to Vision 21 systems; development and evaluation of designs to recycle or utilize all process effluents that would otherwise be regarded as waste streams

*Computational modeling and virtual demonstration* software that provides a cost-effective complement to experimental development is also of interest. Advanced models can assist in the design process by providing physically based simulations of Vision 21 components, modules, and complete plants. An integrated suite of codes (software) that includes submodels for components and subsystems, dynamic response and process control, and visualization capabilities is called the “virtual demonstration.” The virtual demonstration will have a visualization “front-end” that is based on 3-D solid modeling. The geometrical information can be shared with other subprograms to allow detailed “virtual” analysis in many areas of the simulation. Virtual demonstration will illustrate equipment configuration and orientation and simulate plant operation, including dynamic response to changes in load, variations in feedstock properties, changes in component or subsystem operation, and upset conditions.

In developing long-range project plans, potential offerors are encouraged to consider DOE’s Power Systems Development Facility (PSDF) located in Wilsonville, Alabama. The PSDF, developed by a partnership of DOE and industrial interests, is a large pilot-scale R&D facility where advanced power system components can be tested as an integrated system at a scale sufficient to provide confidence and data for commercial design. Modules that already are part of

the PSDF include a transport reactor that can be operated in the combustion or gasification mode (nominal coal feed rate of 2 tons/hour); a pressurized, circulating fluidized bed combustor/partial gasifier (nominal coal feed rate of 3 tons/hour); a combustion turbine (~4 MWe), and high-temperature/pressure gas filters. If long-range project plans do include testing at the scale of the PSDF, DOE would prefer to utilize the PSDF, when appropriate, rather than construct new facilities. Testing at the PSDF may be suitable for support under subsequent, follow-on Vision 21 solicitations. For more information about the PSDF, contact Mr. James Longanbach, U.S. Department of Energy, Federal Energy Technology Center, 3610 Collins Ferry Road, Morgantown, WV 26507-0880, telephone: 304-285-4659, or e-mail: [jlonga@fetc.doe.gov](mailto:jlonga@fetc.doe.gov).

An important goal of the Vision 21 program is to develop technology for using fossil fuels with reduced carbon emissions as carbon dioxide. One approach for achieving this is through higher thermal efficiency. Specific efficiency targets for systems that use coal and gas to produce various products are listed in Section I-D. Another approach to reducing carbon emissions is to capture CO<sub>2</sub> in a nearly pure state in the plant rather than allowing it to enter the atmosphere.

DOE does not desire to support development of technology for transporting or injecting CO<sub>2</sub> for direct sequestration in the present solicitation. Research in this area is being supported in other programs. For the purposes of this solicitation, for proposed technologies that result in collection of CO<sub>2</sub> as part of a Vision 21 plant, the desired final state of CO<sub>2</sub> is as a liquid ready for pipeline transport.

DOE wishes to make clear that, in responding to this solicitation, proposers are not obligated to offer processes or technologies that result in collection of CO<sub>2</sub>. As stated, this approach is but one way to provide for continued use of fossil fuels with reduced carbon emissions.

## **SECTION VI - ATTACHMENTS**

### **ATTACHMENT B**

#### **MODEL COOPERATIVE AGREEMENT**

(End of text for this page)

1. PROJECT TITLE				2. INSTRUMENT TYPE <input type="checkbox"/> GRANT <input type="checkbox"/> COOPERATIVE AGREEMENT			
3. RECIPIENT (Name, address, zip code, area code and telephone no.)				4. INSTRUMENT NO.		5. AMENDMENT NO.	
				6. BUDGET PERIOD FROM:                  THRU:		7. PROJECT PERIOD FROM:                  THRU:	
8. RECIPIENT PROJECT DIRECTOR (Name and telephone no.)				10. TYPE OF AWARD  <input type="checkbox"/> NEW <input type="checkbox"/> CONTINUATION <input type="checkbox"/> RENEWAL  <input type="checkbox"/> REVISION <input type="checkbox"/> SUPPLEMENT			
9. RECIPIENT BUSINESS OFFICER (Name and telephone no.)							
11. DOE PROJECT OFFICER (Name, address, zip code, telephone no.)				12. ADMINISTERED FOR DOE BY (Name, address, zip code, telephone no.)			
13. RECIPIENT TYPE  <input type="checkbox"/> STATE GOV'T <input type="checkbox"/> INDIAN TRIBAL GOV'T <input type="checkbox"/> HOSPITAL <input type="checkbox"/> FOR PROFIT ORGANIZATION <input type="checkbox"/> INDIVIDUAL  <input type="checkbox"/> LOCAL GOV'T <input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION <input type="checkbox"/> OTHER NONPROFIT ORGANIZATION <input type="checkbox"/> C <input type="checkbox"/> P <input type="checkbox"/> SP <input type="checkbox"/> OTHER (Specify) _____							
14. ACCOUNTING AND APPROPRIATIONS DATA:						15. EMPLOYER I.D. NUMBER	
a. Appropriation Symbol		b. B&R Number		c. FT/AFP/OC			
16. BUDGET AND FUNDING INFORMATION							
a. CURRENT BUDGET PERIOD INFORMATION				b. CUMULATIVE DOE OBLIGATIONS			
(1) DOE Funds Obligated This Action                      \$				(1) This Budget Period                      \$ [Total of lines a.(1) and a.(3)]			
(2) DOE Funds Authorized for Carry Over                      \$				(2) Prior Budget Periods                      \$			
(3) DOE Funds Previously Obligated in this Budget Period    \$				(3) Project Period to Date                      \$ [Total of lines b.(1) and b.(2)]			
(4) DOE Share of Total Approved Budget                      \$							
(5) Recipient Share of Total Approval Budget                      \$							
(6) Total Approved Budget                      \$							
17. TOTAL ESTIMATED COST OF PROJECT                  \$ _____ (This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.)							
18. AWARD AGREEMENT TERMS AND CONDITIONS This award/agreement consists of this form plus the following: a. Special terms and conditions. b. Applicable program regulations (specify) _____ (Date) _____. c. DOE Assistance Regulations, 10 CFR Part-600, as amended. d. Application/proposal dated _____, <input type="checkbox"/> as submitted <input type="checkbox"/> with changes as negotiated.							
19. REMARKS							
20. EVIDENCE OF RECIPIENT ACCEPTANCE				21. AWARDED BY			
(Signature of Authorized Recipient Official)                      (Date)				(Signature)                      (Date)			
(Name)				(Name)			
(Title)				<u>Contracting Officer</u> (Title)			

## INSTRUCTIONS

*(This form shall be completed in accordance with the following instructions. For any clarification or additional information that might be needed, consult the appropriate section of the DOE Financial Assistance Procedures Manual (DOE-FAPM).)*

Insert in the space provided, in the line which begins, "Under the Authority of Public Law . . .," the number and the name of the Public Law which authorizes this award. On the line below, enter the title of the pertinent program.

**Block 1** — Enter the project title as it appears in the SF-424 or equivalent application/proposal face sheet.

**Block 2** — Place a checkmark in the box beside the appropriate financial assistance instrument.

**Block 3** — Enter the name, address, and telephone number of the applicant/proposer as it appears in the SF-424 or equivalent application/proposal face sheet.

**Block 4** — Enter the instrument number. (See DOE-FAPM.)

**Block 5** — Enter the appropriate amendment number. (See DOE-FAPM for guidance.)

**Block 6** — Enter the starting date and expiration date for the current budget period. If a budget period is being changed, enter the starting date and expiration date for the budget period, as changed.

**Block 7** — Enter the starting date and anticipated completion date for the project. If a project period is being changed, enter the starting date and anticipated completion date for the project period, as changed.

**Block 8** — Enter the name and telephone number of the individual designated by the applicant/proposer as the director of the project.

**Block 9** — Enter the name and telephone number of the individual designated by the applicant/proposer as the contact for all business matters.

**Block 10** — Place a checkmark in the box opposite the term which identifies the type of action being taken. (The terms are defined in the DOE-FAPM.)

**Block 11** — Enter the name, address, and telephone of the individual designated by the DOE program office as the project officer.

**Block 12** — Enter the name, address, and telephone number of the individual/organization who will administer the agreement for DOE.

**Block 13** — Place a checkmark in the box beside the applicable recipient type. If the recipient is a for-profit organization, also check one of the lower boxes as follows: "C" for Corporation, "P" for Partnership, and "SP" for Sole Partnership. If the recipient is of a type not indicated, place a checkmark in the box beside "Other," and identify the recipient type in the space provided.

**Block 14** — Enter where indicated, the appropriation symbol, B&R number, Fund Type (FT)/AFP Code (AFP)/Objective Class (OC) and CFA Number from the Procurement/Financial Assistance Request Authorization (DOE Form PR-799A). Completion Block 14.d. is required only for awards made by Headquarters.

**Block 15** — Enter the applicant's/proposer's Federal Employer Identification No. from the SF-424 or equivalent application/proposal face sheet, or if the applicant/proposer is an individual, enter his/her social security number.

**Block 16** — Entries should be made as follows. (If no dollar entry is appropriate, a zero should be entered to indicate there was no error of omission.)

**Line a.(1)** — Enter the amount of DOE funds obligated by this action.

**Line a.(2)** — Enter the amount of DOE funds not expended in prior budget period(s), if any, authorized by DOE for expenditure in the current budget period.

**Line a.(3)** — Enter the amount of DOE funds previously obligated in the current budget period.

**Line a.(4)** — Enter DOE's share of the total approved budget shown in Line a.(6).

**Line a.(5)** — Enter the recipient's share of the total approved budget shown on Line a.(6).

**Line a.(6)** — Enter the total approved budget for the current budget period. (Add the amounts in Lines a.(4) and a.(5).)

**Line b.(1)** — Enter the amount of DOE funds obligated in the current budget period. (Add the amounts in Lines a.(1) and a.(3).)

**Line b.(2)** — Enter the amount obligated by DOE in prior budget periods.

**Line b.(3)** — Enter the amount obligated by DOE in the project period to date. (Add the amounts in Lines b.(1) and b.(2).)

**Block 17** — Must be completed for cooperative agreements. Contracting Officers may exercise discretion as to whether to complete it for grants. Enter the blank provided, the amount which represents the current estimate of total funds and dollar value of in-kind contributions (both DOE and recipient shares) needed to carry out the entire project. Include all funds and contributions previously provided, those being provided by this action, and all anticipated future obligations and contributions of both parties.

**Block 18** — Complete as follows.

**Item a.** — No entry necessary.

**Item b.** — Enter the legal citation from the Code of Federal Regulations or Federal Register and the effective date for the program regulations applicable to the program under which the award is made.

**Item c.** — Mark the box beside B for grants or C for cooperative agreements.

**Item d.** — In the blank provided, enter the date of the application/proposal. (If SF-424 is used, see block 23c on page 1.) Place a checkmark in the appropriate box to indicate whether the application/proposal was accepted as submitted or with negotiated changes.

**Block 19** — Enter any explanation or advisory comments which are required for, or applicable to, this action.

**Block 20** — Will be completed by the recipient.

**Block 21** — The Contracting Officer shall sign and date the top line. His/her name and title should be entered on the next two lines. This box must be signed prior to forwarding to recipient.

## **SECTION II -- SPECIAL TERMS AND CONDITIONS**

### **2.1 Prevailing Regulations**

As indicated on the face page, Block 18c, this award is subject to the DOE Assistance Regulations of Title 10, Code of Federal Regulations, Part 600. This set of regulations may be found in most major libraries or on the World Wide Web at:

**<http://www.pr.doe.gov/fahome.html>**

### **2.2 Order of Precedence**

In the event of any inconsistency among the provisions of this agreement, the inconsistency shall be resolved by giving precedence as follows: (a) Applicable Public Laws; (b) 10 CFR Part 600; (c) the special terms and conditions or schedule of articles; and (d) other documents, exhibits and attachments.

### **2.3 Substantial Involvement Between DOE and the Recipient**

#### **a. Recipient Role**

The Recipient shall be responsible for all aspects of project performance as set forth in the Statement of Work. All services, personnel, facilities, equipment, materials, and supplies shall be furnished by the Recipient, unless otherwise specified under this Cooperative Agreement. The Recipient Project Director shall serve as its authorized representative for the technical elements of all work to be performed under this Cooperative Agreement. The Recipient Business Officer shall serve as its authorized representative for administrative elements dealing with the Cooperative Agreement.

#### **b. DOE Role**

DOE shall monitor the Recipient's progress in performing the project and shall have a substantial role in project decision making.

The DOE Contracting Officer is the only Government Representative authorized to accept the reports and other deliverables the Recipient is required to provide under this Cooperative Agreement. The DOE Project Officer (same as Contracting Officer's Representative) shall have the authority to comment on those technical reports, plans, and other technical information the Recipient is required to submit to DOE for review and comment.

The DOE Project Officer shall have the authority to issue written technical advice that suggests redirecting the project work (e.g., by changing the emphasis among different tasks), or pursuing specific lines of inquiry likely to assist in accomplishing the Statement of Work. The DOE Project Officer is not authorized to issue, and the Recipient is not required to follow, any technical advice



that constitutes work which is not within the scope of the Statement of Work; which in any manner causes an increase or decrease in the total estimated cost or in the time required for performance of the project; which has the effect of changing any of the terms or conditions of the Cooperative Agreement; or which interferes with the Recipient's right to perform the project in accordance with the terms and conditions of this Cooperative Agreement.

c. No Government Obligation to Third Parties

In connection with the performance of the project, the Government shall have no obligation or responsibility to any contractor, subcontractor or other person who is not a party to this Cooperative Agreement. The foregoing limitation shall apply notwithstanding the Contracting Officer's prior approval of or consent to any contract awarded by the Recipient. The Recipient shall be responsible, without recourse to DOE, except for amounts DOE is otherwise obligated to pay pursuant to the provisions of this Cooperative Agreement for the resolution and satisfaction of all preaward protests, contract administration issues, and contract disputes arising out of contracts awarded by the Recipient for acquisitions related to the Project.

**2.4 Cost Sharing**

In accordance with 10 CFR 600.123(j), cost sharing is based on [Insert "a minimum amount for the Recipient" or "a percentage of total cost"].

**2.5 Funding**

Funding in the amount [ TBD ] is obligated and made available for payment of the Government's share of allowable costs. Additional budget period funding is anticipated from future DOE appropriations and intended for future obligation by amendment to this award.

The Recipient shall promptly notify the Contracting Officer in writing of the estimated amount of additional funds, if any, are required to continue timely performance under this award and when the funds will be required. The maximum DOE obligation to the Recipient is shown in Block 16(b) of the DOE Form 4600.1. The Government is not obligated to increase the total dollar amount funded and the Recipient is not obligated to continue performance under this award or otherwise incur costs to the extent that the Government's share of allowable costs would exceed the amount obligated by the Government.

**2.6 Allowable Preaward Costs**

The Recipient is entitled to reimbursement of preaward costs in the amount not to exceed [ TBD ] of DOE obligations. These costs are limited to work associated with performance of [ TBD ], incurred during the period starting on [ TBD ] through the effective start date of this award (Block 7, DOE F 4600.1).

## **2.7 Method of Payment**

The method of payment to the Recipient shall be accomplished by the method checked below:

- [ TBD ] Advance in accordance with 10 CFR 600.122(b)
- [ TBD ] Reimbursement in accordance with 10 CFR 600.122(e)
- [ TBD ] Other in accordance with 10 CFR 600.122

The Recipient shall request advances or reimbursements using the Standard Form SF 270, Request for Advance or Reimbursement, and shall complete Blocks 1-11 and 13.

Note 1: If the block designating payment by Advance is used, the Recipient is allowed advances not to exceed the funding required to cover expenditures for any succeeding one-month time period. Such requests for monthly advances shall be prepared using the Standard Form SF 270 in an original and two (2) copies.

The original is to be submitted to:

U. S. Department of Energy  
Oak Ridge Financial Services  
P. O. Box 4787  
Oak Ridge, TN 37831

The two copies are to be submitted to:

U.S. Department of Energy  
Federal Energy Technology Center  
Commercial Payments Center  
P. O. Box 10940, MS 921-107  
Pittsburgh, PA 15236-0940

Note 2: If the block designating payment by Reimbursement is used, the Recipient shall submit the request for payment for costs incurred using the Standard Form SF 270 in an original and two (2) copies as indicated in Note 1 above. This request shall not be submitted more frequently than monthly.

## **2.8 Notice of Invoice Processing by Support Contractor**

A support service contractor performs the function of processing of all invoices submitted to the Federal Energy Technology Center, against its awards. Therefore, this contractor has access to your business confidential cost/rate information. A special provision in this contractor's award requires the confidential treatment by all contractor employees of any and all business confidential information of other contractors and financial assistance recipients to which they have access.

## **2.9 Method of Payment - Payment Management System (PMS) 10 CFR 600.122**

The Recipient is required to maintain advances of Federal funds in interest-bearing accounts. Any interest income earned by the Recipient on Federal funds must be remitted at least quarterly to the cognizant DOE office. However, up to \$250 of the interest earned per year may be retained by the Recipient to cover administrative expenses.

Funds advanced to the Recipient must be kept to a minimum amount necessary to meet the Recipient's cash flow needs. Cash needs shall be determined by the Recipient's cash outlay requirements and shall not be based on costs incurred. If funds are erroneously drawn in excess of the Recipient's immediate disbursement needs, the excess funds should be promptly refunded and reissued when needed. The only exception to this is when excess funds will be disbursed by the Recipient within seven calendar days or when the excess funds are less than \$10,000 and will be disbursed within thirty (30) calendar days.

A computer-generated report (PMS 272 -- Federal Cash Transaction Report, Status of Federal Cash) will be furnished by the Department of Health and Human Services (DHHS) to all Recipients on a quarterly basis with active PMS accounts. The Recipient will be required to review the report and certify that the data are correct. In addition to returning the certified report to the DHHS, a copy of the report must be sent to the cognizant Contracting Officer. Unsigned reports will be returned and may cause delays in payment if the report due date has passed.

A detailed statement of costs incurred and the cost sharing amount shall be forwarded to the Contracting Officer concurrent with drawdowns from the PMS.

## **2.10 Acknowledgment of Federal Funding**

When issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing this project, the Recipient shall clearly state (1) the percentage of the total cost of the project that will be financed with Federal money, and (2) the dollar amount of Federal funds for the project.

## **2.11 Real Property - None**

No real property may be acquired under this award.

## **2.12 Recipient-Acquired Property**

Reference Attachment [TBD ] for a listing of property authorized for acquisition under this award. Property acquired by the Recipient under this award shall be managed in accordance with 10 CFR 600.130 to 10 CFR 600.137, and reported as prescribed in Attachment B, Federal Assistance Reporting Checklist.

### **2.13 Federally Owned Property (Government-Furnished) - None**

No Government-furnished property is provided under this award.

### **2.14 Key Personnel**

Recipient personnel considered to be essential and key to the work being performed hereunder are specified below.

<u>NAME</u>	<u>TITLE</u>	<u>TELEPHONE</u>
[ TBD ]	[ TBD ]	[ TBD ]

The personnel specified in this clause are considered to be essential to the project. Before diverting any key personnel to work outside the scope of this award, the Recipient shall notify the Contracting Officer reasonably in advance and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the project. No key personnel may be substituted without the Contracting Officer's approval. Such approval shall be obtained in advance of the substitution, except that the Contracting Officer may ratify a substitution which, because of exigent circumstances, was made before the Recipient could request and/or obtain the Contracting Officer's approval.

### **2.15 Paper Work Reduction (NOV 1998)**

The award is subject to the requirements of the Paperwork Reduction Act of 1980 as implemented by the Office of Management and Budget rules, "Controlling Paperwork Burdens on the Public," published at 5 CFR 1320. These requirements apply if the Recipient will collect information from ten (10) or more respondents at the specific request of DOE, or if the award requires specific DOE approval of the information collection or the collection procedures.

The Recipient shall submit any proposed sponsored information collection to the person identified on the DOE F 4600.1 (Award Face Page, Block 12). The proposal shall be submitted at least 120 days prior to the intended date of information collection. DOE will seek the requisite approval from the Office of Management and Budget (OMB) and will promptly notify the Recipient of the disposition of the request.

### **2.16 Nondiscrimination (NOV 1998)**

This award is subject to the provisions of 10 CFR 1040, "Nondiscrimination in Federally Assisted Programs."

## **2.17 Public Access to Information (JULY 1999)**

The Freedom of Information Act, as amended, and the DOE implementing regulations (10 CFR 1004) require DOE to release certain documents and records regarding awards to any person who provides a written request. The intended use of the information will not be a criterion for release. These requirements apply to information held by DOE and do not require Recipients, their subgrantees, or their contractors to permit public access to their records.

## **2.18 National Security (NOV 1998)**

It is not expected that activities under the award will generate or otherwise involve classified information (i.e., Restricted Data, Formerly Restricted Data, National Security Information).

However, if in the opinion of the Recipient or DOE such involvement becomes expected prior to the closeout of the award, the Recipient or DOE shall notify the other in writing immediately. If the Recipient believes any information developed or acquired may be classifiable, the Recipient shall not provide the potentially classifiable information to anyone, including the DOE officials with whom the Recipient normally communicates, except the Director of Classification, and shall protect such information as if it were classified until notified by DOE that a determination has been made that it does not require such handling. Correspondence which includes the specific information in question shall be sent by registered mail to U.S. Department of Energy, Attn.: Executive Assistant for Defense Programs, DP-4, 4A-019/FORS, 1000 Independence Avenue, Washington, D.C. 20585. If the information is determined to be classified, the Recipient may wish to discontinue the project, in which case the Recipient and DOE shall terminate the award by mutual agreement. If the award is to be terminated, all materials deemed by DOE to be classified shall be forwarded to DOE, in a manner specified by DOE, for proper disposition. If the Recipient and DOE wish to continue the award, even though classified information is involved, the Recipient shall be required to obtain both personnel and facility security clearances through the Office of Safeguards and Security for Headquarters awarded awards obtained through DOE field organizations. Costs associated with handling and protecting any such classified information shall be negotiated at the time the determination to proceed is made.

## **2.19 Notice Regarding the Purchase of American-Made Equipment and Products -- Sense of Congress (NOV 1998)**

It is the sense of the Congress, that to the greatest extent practicable, all equipment and products purchased with funds made available under this award should be American-made.

## **2.20 Lobbying Restriction (Department of Interior and Related Agencies Appropriations Act, 1999)(JUNE 1999)**

The contractor or awardee agrees that none of the funds obligated on this award shall be made available for an activity or the publication or distribution of literature that in any way tends to promote public support or opposition to any legislative proposal on which Congressional action is

not complete. This restriction is in addition to those prescribed elsewhere in statute and regulation.

A copy of the DOE “Lobbying Brochure” which provides a summary of the statutory and regulatory restrictions regarding lobbying activities for Federal contractors can be found at (<http://www.pr.doe.gov/lobbying.html>).

### **2.21 Notice Regarding Unallowable Costs and Lobbying Activities**

Recipients of financial assistance are cautioned to carefully review the allowable cost and other provisions applicable to expenditures under their particular award instruments. If financial assistance funds are spent for purposes or in amounts inconsistent with the allowable cost or any other provisions governing expenditures in an award instrument, the government may pursue a number of remedies against the Recipient, including in appropriate circumstances, recovery of such funds, termination of the award, suspension or debarment of the Recipient from future awards, and criminal prosecution for false statements.

Particular care should be taken by the Recipient to comply with the provisions prohibiting the expenditure of funds for lobbying and related activities. Financial assistance awards may be used to describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not to encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

### **2.22 Year 2000 Compliance**

Year 2000 compliant means, with respect to information technology, the information technology accurately processes date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap-year calculations, to the extent that other information technology, used in combination with the information technology being acquired, properly exchanges date/time data with it.

The Recipient assures, by acceptance of this award, that items delivered under this contract are year 2000 compliant.

### **2.23 Reporting**

Failure to comply with the reporting requirements contained in this award will be considered a material noncompliance with the terms of the award. Noncompliance may result in a withholding of future payments, suspension or termination of the current award, and withholding of future awards. A willful failure to perform, or of unsatisfactory performance of this and/or other financial assistance awards, may also result in a debarment action to preclude future awards by Federal agencies.

## **2.24 Research Involving Recombinant DNA Molecules**

Any Recipient performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant DNA molecules agrees by acceptance of this award to comply with the National Institute of Health "Guidelines for Research Involving Recombinant DNA Molecules," (59 FR 34496, July 5, 1994 as amended by 59 FR 40170, 60 FR 20726, 61 FR 1482, 61 FR 10004, 62 FR 53335, 62 FR 56196, 62 FR 59032 and 63 FR 8052, "subject to change - call 301-496-9838 to obtain reference to a current version.")

## **2.25 Safety & Health and Environmental Protection**

The Recipient shall implement the DOE work in accordance with all applicable Federal, State, and local laws, including codes, ordinances, and regulations, covering safety, health, and environmental protection.

The Recipient agrees to include this clause in first-tier subcontracts and agrees to enforce the terms of this clause.

## **2.26 Permits and Licenses**

Within sixty (60) days of award, the Recipient shall submit to the DOE Contracting Officer's Representative (COR) a list of ES&H approvals that, in the Recipient's opinion, shall be required to complete the work under this award. The list shall include the topic of the approval being sought, the approving authority, and the expected submittal/approval schedule. The COR shall be notified as specific items are added or removed from the list and processed through their approval cycles.

The Recipient agrees to include this clause in first-tier subcontracts and agrees to enforce the terms of this clause.

## **SECTION III -- INTELLECTUAL PROPERTY PROVISIONS**

### **3.1 Intellectual Property Provisions**

The patent and technical data clauses included in this section apply to this award. As used in these applicable clauses, the term "Patent Counsel" refers to the following point of contact:

Intellectual Property Law Division  
U.S. Department of Energy  
Chicago Operations Office  
9800 South Cass Avenue  
Argonne, IL 60439

In any of the FAR and DEAR clauses contained in this section, use of the term "Contract" means "Award" and "Contractor" means "Recipient."

The Recipient shall include intellectual property clauses in any contract awarded in accordance with requirements of the clauses in this section and of 10 CFR Part 600.27.

### **3.2 Publication of Results/Acknowledgment Statement**

Publication of the results of the award is encouraged subject to any applicable restrictions in 10 CFR 600.27 (Patent and Data Provisions). Publications, as well as reports prepared under this award, shall contain the following acknowledgment statement:

"This (describe material) was prepared with the support of the U.S. Department of Energy, under Award No. DE-[ **TBD** ]. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the DOE."

### **3.3 Recipient Press Releases**

The DOE policy and procedure on planned press releases requires that all Recipient press releases be reviewed and approved by DOE prior to issuance. Therefore, the Recipient shall, at least ten (10) days prior to the planned issue date, submit a draft copy to the Contracting Officer of any planned press releases related to work performed under this award. The Contracting Officer will then obtain necessary reviews and clearances and provide the Recipient with the results of such reviews prior to the planned issue date.



### **3.4 Confidential Business Information**

Data represented to the Department as being confidential business information, and that does not include “Technical Data” as that term is defined in 52.227-14 Rights in Data General clause of this agreement, shall be submitted as an attachment to the required reports and will be withheld from disclosure outside FETC to the extent permitted by law, provided such attachment and each page therein is stamped with the following legend and no other:

#### **CONFIDENTIAL BUSINESS INFORMATION**

The Recipient considers the data furnished herein to contain confidential business information which is to be withheld from disclosure outside FETC to the extent permitted by law.

### **3.5 Patent and Data Provisions**

The cooperative agreement will include the patent and data provisions in accordance with 10 C.F.R. 600.27.

#### **SECTION IV -- LIST OF ATTACHMENTS**

Attachment A -- Statement of Project Objectives

Attachment B -- Federal Assistance Reporting Checklist

Attachment C -- Budget Page(s)

Attachment [ TBD ] -- Recipient-Acquired Property

Attachment [ TBD ] -- Federally Owned Property -- Government Furnished

**ATTACHMENT A -- STATEMENT OF PROJECT OBJECTIVES (JAN 1999)**

[Insert the Statement of Project Objectives here. The format should be similar to the following.]

- A. Objectives
- B. Scope of Project
- C. Tasks to Be Performed
- D. Deliverables

The Recipient shall provide reports in accordance with the enclosed Federal Assistance Reporting Checklist and the instructions accompanying the Checklist. In addition to the reports identified on the Reporting Checklist, the Recipient shall provide the following:

[ TBD ]

**ATTACHMENT B -- FEDERAL ASSISTANCE REPORTING CHECKLIST (JAN 1999)**

FETC F 540.3-1#  
(8/99) OPI=PS10  
(Previous Editions Obsolete)

**U.S. DEPARTMENT OF ENERGY  
Federal Energy Technology Center**

**FEDERAL ASSISTANCE REPORTING CHECKLIST**

<b>1. Awardee:</b>	<b>2. Identification Number:</b>																																																																																																																
<b>3. Report Submission Address:</b> <i>The requested quantity of all required report deliverables shall be submitted to the following address:</i> <p align="center"><b>FETC AAD DOCUMENT CONTROL BLDG. 921 U.S. DEPARTMENT OF ENERGY FEDERAL ENERGY TECHNOLOGY CENTER P.O. BOX 10940 PITTSBURGH, PA 15236-0940</b></p>																																																																																																																	
<b>4. Planning and Reporting Requirements:</b> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width:50%;"></th> <th style="width:15%;">Form No.</th> <th style="width:10%;">Freq.</th> <th style="width:25%;">Number of Copies</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>A. 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<b>6. Special Instructions:</b> The forms identified in the checklist are available at <a href="http://www.fetc.doe.gov/business/forms/forms.html">http://www.fetc.doe.gov/business/forms/forms.html</a> . Alternate formats are acceptable provided the contents remain consistent with the form. All <b>technical reports</b> submitted to the DOE <b>must</b> be accompanied by a completed and signed <b>FETC F 2050.4</b> addressing patent information.																																																																																																																	

#### **4.1 General Instructions for the Preparation and Submission of Reports (MAY 1999)**

The Recipient shall prepare and submit (postage prepaid) the plans and reports indicated on the "Federal Assistance Reporting Checklist" to the addressee identified on the checklist. The level of detail the Recipient provides in the plans and reports shall be commensurate with the scope and complexity of the effort and shall be as delineated in the guidelines and instructions contained herein. The prime Recipient shall be responsible for acquiring data from any contractors or subrecipients to ensure that data submitted are compatible with the data elements which prime Recipients are required to submit to DOE.

#### **4.2 Financial Status Report (Standard Form 269 or 269A)(MAY 1999)**

This report is used for the Recipient to provide regular periodic accounting of project funds expended. The accounting may be on either a cash or accrual basis. Actual total expenditures and obligations incurred, but not paid, are reported for each reporting period for each major activity. They should correlate with those identified on the "Federal Assistance Milestone Plan" when the "Federal Assistance Milestone Plan" is required. Provision is made to identify the Federal and non-Federal share of project outlays for each identified activity.

#### **4.3 Report of Federal Cash Transactions (Standard Form 272)(MAY 1999)**

This report is used by DOE to monitor cash advanced to Recipients and to obtain disbursement information. The content of the report is prescribed in 10 CFR 600.152 for Institutions of higher Education, Hospitals, Other Non-Profit Organizations and Commercial Organizations or 10 CFR 600.241 for States and Local Governments.

#### **4.4 Technical Reports (MAY 1999)**

**CAUTION:** Technical reports SHALL NOT include limited rights data (such as restricted, proprietary or patentable information). If requested, Limited Rights Data shall be submitted in a separate proprietary appendix to the technical report. This appendix SHALL NOT be submitted in an electronic format but rather submitted in ONE ORIGINAL AND THREE (3) PAPER COPIES along with the paper version of the technical report deliverable. The appendix shall be referenced in, but not included in, the technical report deliverable under the contract. In accordance with FAR 52.227-14, Rights in Data-General, the appendix must be appropriately marked and identified.

All TECHNICAL REPORTS submitted to the DOE MUST be accompanied by a completed and signed FETC F 2050.4, addressing patent information.

#### **4.5 Technical Progress Report (Annual, Quarterly, and Semi-Annual)(MAY 1999)**

The body of the report should contain a full account of progress, problems encountered, plans for the next reporting period, and an assessment of the prospects for future progress.

The Technical Progress Report should include sufficient detail to allow the work to be reproduced by others. Results and reduced data shall be presented together with a discussion of the relevance of the findings. When experimental systems and/or procedures are being utilized for the first time, they shall be described in detail. This description shall contain detailed information on equipment and procedures utilized, as well as providing a rationale for their use. All data reduction and transformation methods shall be fully

documented. For every fourth calendar quarter for quarterly reports or every second half year for semi-annual reports, the report should be expanded to provide for detailed information on the results of the past year, problems encountered, significant accomplishments, listing of publications, presentations, and approaches to be taken the following year.

Informational items in technical progress reports shall include:

Experimental Apparatus -- A comprehensive description, including dimensioned drawings or sketches, of the apparatus and associated diagnostic measurement equipment employed to perform the experimental research.

Experimental and Operating Data -- All experimental data acquired during the course of research including detailed characterization of the sample materials subjected to experimentation.

Data Reduction -- A complete description of the methods employed to transform raw measured data into a form usable for interpretation along with any assumptions or restrictions inherent in the method and the resultant reduced data.

Hypothesis and Conclusions -- Logic for drawing conclusions or developing hypotheses shall be clearly stated along with applicable assumptions or restrictions.

#### **4.6 Final Technical Report (MAY 1999)**

The Final Technical Report shall document and summarize all work performed during the award period in a comprehensive manner. It shall also present findings and/or conclusions produced as a consequence of this work. This report shall not merely be a compilation of information contained in subsequent quarterly, or other technical reports, but shall present that information in an integrated fashion, and shall be augmented with findings and conclusions drawn from the research as a whole.

The Recipient shall deliver a draft copy of the final report thirty (30) days after completion of the project period. The Government shall be allowed thirty (30) days to review the draft copy and to notify the Recipient, in writing, of approval or recommended changes. If the Government does not approve or recommend changes within thirty (30) days of receipt of the draft copy, the report shall be deemed approved. The approved final report is due ninety (90) days after completion of the project period.

#### **4.7 Topical Report (MAY 1999)**

These reports usually provide a comprehensive statement of the technical results of the work performed for a specific task or subtask of the Statement of Project Objectives, or detail significant new scientific or technical advances. If required, DOE shall review and approve the report outline prior to submission of the report.

#### **4.8 Software (MAY 1999)**

Major pieces of computer software developed largely as a result of the performance of this effort shall be delivered to the Government shortly after development or at the completion of the effort, as appropriate. The software shall be delivered together with sufficient documentation concerning its development and use to permit future use by others, and to provide a firm basis for allowing modifications to be made in any subsequent development efforts. Unless otherwise specified, software shall be written in a standard computer

language such as Fortran 77, operate on the VAX VMS version 5.1 operating system or an IBM PC-compatible personal computer running MS/DOS, and should not incorporate or be dependent on the use of proprietary software.

#### **4.9 Guidelines for Organization of Technical Reports (MAY 1999)**

The following sections should be included (as appropriate) in technical reports in the sequence shown. Any section denoted by an asterisk is required in all technical reports.

**TITLE PAGE\*** - The Title Page of the report itself must contain the following information in the following sequence:

Report Title  
Type of Report (Quarterly, Semi-Annual, Annual, Topical, Final)  
Reporting Period Start Date  
Reporting Period End Date  
Principal Author(s)  
Date Report was Issued (Month [spelled out] and Year [4 digits])  
DOE Award Number (e.g., DE-FG26-99FT12345) and if appropriate, task number  
Name and Address of Submitting Organization (This section should also contain the name and address of significant subcontractors or subrecipients who participated in the production of the report.)

**DISCLAIMER\*** -- The Disclaimer must follow the title page, and must contain the following paragraph:

“This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.”

**ABSTRACT\*** - Should be a brief, concise summary of the report.

**TABLE OF CONTENTS\***

**LIST(S) OF GRAPHICAL MATERIALS**

**INTRODUCTION**

**EXECUTIVE SUMMARY** - This should be a well organized summary that highlights the important accomplishments of the research during the reporting period. It should be no less than one page and

no more than two pages in length, and should be single spaced. This summary must be more comprehensive than the traditional "abstract."

EXPERIMENTAL\* - This should describe, or reference all experimental methods being used for the research. It should also provide detail about materials and equipment being used. Standard methods can be referenced to the appropriate literature, where details can be obtained. Equipment should be described only if it is not standard, or if information is not available through the literature or other reference publications.

RESULTS AND DISCUSSION\* - It is extremely important that this section includes enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. With the relevant data, explain how the data were interpreted and how they relate to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem.

CONCLUSION\* - The conclusion should not simply reiterate what was already included in the "Results and Discussion" section. It should, however, summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

REFERENCES\*

BIBLIOGRAPHY

LIST OF ACRONYMS AND ABBREVIATIONS

APPENDICES (IF NECESSARY)

Company Names and Logos -- Except as indicated above, company names, logos, or similar material should not be incorporated into reports.

Copyrighted Material -- Copyrighted material should not be submitted as part of a report unless written authorization to use such material is received from the copyright owner and is submitted to DOE with the report.

Measurement Units -- All reports to be delivered under this instrument shall use the SI Metric System of Units as the primary units of measure. When reporting units in all reports, primary SI units shall be followed by their U.S. Customary Equivalents in parentheses ( ).

The Recipient shall insert the text of this clause, including this paragraph, in all subcontracts under this award.

Note: SI is an abbreviation for "Le Systeme International d'Unites."

#### **4.10 Electronic Media Standard for Preparation of Technical Reports (MAY 1999)**

##### **FILE FORMAT**

Production of high-quality electronic documents is dependent on the quality of the input that is provided. Thus, the Recipient shall submit one good quality paper copy using either permanent or alkaline paper plus an electronic version of each technical report.



ELECTRONIC REPORTS SHALL BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT.

Each report shall be an integrated file that contains all text, tables, diagrams, photographs, schematics, graphs, and charts.

#### SUBMISSION FORMAT

The electronic file(s) shall be submitted via diskette or CD-ROM. Diskettes or CD-ROMs must be labeled as follows:

DOE Award Number  
Type/Frequency of Report(s)  
Reporting Period (if applicable)  
Name of submitting organization  
Name, phone number and fax number of preparer

Diskettes -- Diskettes must be 3.5" double-sided, high-density (1.4 M Byte capacity). If file compression software is used to transmit a PDF file spanning more than one diskette, PKZIP from PKWare, Inc., is the required compression software. State the number of diskettes in the set (e.g., 1/3)

CD-ROM -- The electronic file(s) may be submitted on an ISO9660-format CD-ROM.

#### FILE NAMING

In naming the electronic file, the Recipient shall use the standard eight-character naming convention for the main file name, and the three character extension applicable to the software use, e.g., .pdf for Adobe.

For the main file name, the first five characters are the last five digits from the award number; e.g., for Award Number DE-FG26-97FT12345, the first five characters are 12345.

The next character represents the technical report and will always be designated as "R."

The remaining two characters indicate the chronological number of the particular type of report; e.g., Quarterly Technical Progress Reports for a 5-year award are numbered R01 through R20. Thus, the main file name for the sixth Quarterly Technical Progress Report under Award No. DE-FG26-99FT12345 would be 12345R06.PDF. If monthly, quarterly, annual, and a final technical report are required, the numbers would run from R01 through R86 (60 monthly reports, 20 quarterly reports, 5 annual reports, and 1 final report).

#### **4.11 Environmental (MAY 1999)**

In response to the requirements of the National Environmental Policy Act of 1969 (NEPA) and other related environmental statutes, the Federal Energy Technology Center (FETC) requires the submission of various documents that assess the environmental aspects and projected impacts of all of its proposed actions. These documents may include the following: (1) Hazardous Substance Plan, (2) Hazardous Waste Report, (3) Environmental Compliance Plan, (4) Environmental Monitoring Plan, and (5) Environmental Status Reports.

The environmental information provided in these documents will enable FETC to fulfill its responsibilities under NEPA (additional information about the requirements of the National Environmental Policy Act can be found in the DOE NEPA Compliance Guide and 40 CFR 1021) and to monitor the Recipient's compliance with other environmental regulations. The implementation of any task associated with a proposed action will be dependent upon DOE submitting and acquiring approval of necessary NEPA documentation. Therefore, to minimize the risk of project delays, it is imperative that these reports be submitted in a timely manner.

The information contained herein specifies the basic environmental requirements for this award, but it is not to be interpreted as containing all necessary information for any given project. Likewise, certain aspects of the requirements may not be applicable. Accordingly, the level of information provided should be sufficient for DOE to assess the environmental implications of the proposed action.

#### **4.12 Hazardous Substance Plan (MAY 1999)**

The Recipient shall submit a Hazardous Substance Plan not later than thirty (30) days after initial award. The Plan shall specifically identify each Hazardous Substance (as defined under 40 CFR 261, Subpart D, entitled Lists of Hazardous Wastes) anticipated to be purchased, utilized or generated in the performance of this award. For each such Hazardous Substance identified, the Plan shall specifically provide the following information:

- Description of Substance/Chemical
- EPA Hazardous Waste Number
- EPA Hazard Code
- Anticipated Quantity to be purchased, utilized or generated
- Anticipated Hazardous Waste Transporter
- Anticipated Hazardous Waste Disposal Facility Contractor and Location (City/Municipality,State)
- Anticipated Treatment Method

#### **4.13 Hazardous Waste Report (MAY 1999)**

The Recipient shall submit a Hazardous Waste Report at the completion of award performance. The Report shall specifically identify each Hazardous Waste (as defined under 40 CFR 261, Subpart D, entitled Lists of Hazardous Wastes) actually utilized, or generated in the performance of this award. For each such Hazardous Waste identified, the Report shall specifically provide the following information:

- Description of Substance/Chemical
- EPA Hazardous Waste Number
- EPA Hazard Code
- Actual Quantity Disposed
- Actual Hazardous Waste Transporter

Actual Hazardous Waste Disposal Facility Contractor and Location (City/Municipality, State)  
Actual Disposal Date  
Actual Treatment Method

The Hazardous Waste Report is intended as a final reconciliation of anticipated versus actual Hazardous Substances purchased, utilized, or generated in the performance of this award.

#### **4.14 Property Reports (MAY 1999)**

The FETC Property Handbook entitled "Management of Government Property in the Possession of Contractors," contains forms, instructions, and suggested formats for submission of property reports. This handbook can be found at <http://www.fetc.doe.gov/business/index.html>.

#### **4.15 Annual Report of Property in the Custody of Contractors (FETC F 580.1-8) (MAY 1999)**

This report includes **ALL** government-owned and government-furnished property and materials for which the Recipient is accountable to the Government. This report shall also include Government Property at subcontractor's plants and alternate locations. This report is submitted on FETC F 580.1-8 for the period ending September 30 and is due by October 15.

#### **4.16 Report of Termination or Completion Inventory (SF-1428 AND SF-120) (MAY 1999)**

This report submitted on the SF-1428 and SF-120 is due immediately upon completion or termination of the award. The Recipient is required to perform and cause each subcontractor to perform a physical inventory, adequate for disposal purposes, of all Government property applicable to the award.

#### **4.17 High Risk Property Report (FETC 4440.5) (MAY 1999)**

Some property, because of its peculiar nature, its potential impact on public health and safety, on the environment, on security interests, or on proliferation concerns, must be handled, controlled, cleared and disposed of in other than the standard manner. High-risk property includes property which is: 1) nuclear-related; 2) proliferation-sensitive or export controlled; 3) chemically, biologically, or radiologically contaminated; 4) national security/military interests; and 5) hazardous materials and wastes. Further definitions of high-risk property can be found at <http://www.pr.doe.gov/ppl.html>. This report is required by the DOE for the control (acquisition, management and disposal) of high risk property to ensure that such disposition does not adversely affect public safety and/or the environment, national security, or nuclear nonproliferation objectives of the United States. This report shall be submitted for the period ending September 30 and is due by October 15 of each year.

#### **4.18 Hot Line Report (MAY 1999)**

The "Hot Line Report" may be used to report a major breakthrough in research, development, or design; an event causing a significant schedule slippage or cost growth; an environmental, safety and health violation; achievement of or failure to achieve an important technical objective; or any requirement for quickly documented direction or redirection. The report shall be submitted by the most rapid means available, usually electronic, and should confirm telephone conversations with DOE representatives. Identification as a "Hot Line Report" serves notice at each link in the delivery chain that expedition in handling is required. Unless

otherwise agreed by the parties involved, DOE is expected to take action and respond in a similarly timely manner. The report should include:

1. Recipient's name and address;
2. Award title and number;
3. Date;
4. Brief statement of problem or event;
5. Anticipated impacts; and
6. Corrective action taken or recommended.

Hot line reports shall document the incidents listed below:

1. Any single fatality or injuries requiring hospitalization of five or more individuals is to be immediately reported.
2. Any significant environmental permit violation is to be reported as soon as possible, but within 24 hours of the discovery of the incident.
3. Other incidents that have the potential for high visibility in the media are to be reported as quickly as possible, but within 24 hours following discovery.
4. Any failure resulting in damage to Government-owned equipment in excess of \$50,000 is to be reported as quickly as possible, but within 24 hours of the discovery of the failure.
5. Any unplanned event which is anticipated to cause a schedule slippage or cost increase significant to the project is to be reported within 24 hours.
6. Any verbal or written Notice of Violation of any Environmental, Safety, and Health statutes arising from the performance of this award is to be immediately reported.
7. Any accidental spill or release which is in violation of any Environmental, Safety, and Health statutes arising from the performance of this award is to be immediately reported, but within 24 hours of the discovery of the accident.
8. Any incident which causes a significant process or hazard control system failure, or is indicative of one which may lead to any of the above defined incidents, is to be reported as soon as possible, but within 5 days of discovery.

The requirement to submit Hot Line Reports for the incidents identified in 1, 2, 3, 6, or 7 is for the sole purpose of enabling DOE officials to respond to questions relating to such events from the media and other public.

When an incident is reported in accordance with 4, 5, 6, 7, or 8, the Recipient shall conduct an investigation of its cause and make an assessment of the adequacy of resultant action. A written report is required no later than ten (10) calendar days following the incident and shall include an analysis of the pertinent facts regarding the cause, and a schedule of the remedial events and time periods necessary to correct the action.

When an event results in the need to issue a written or verbal statement to the local media, the statement is to be cleared first, if possible, and coordinated with FETC Management and Communications Division, the Contracting Officer's Representative (COR) and the Contracting Officer.

#### **4.19 Attachment C -- Budget Pages (APR 1999)**

[Insert the files from K:\common\adata\form\d4620.1 (Budget Page) and/or K:\common\adata\form\er\_f4600.4 (Grant Application Project Period Summary) if it is anticipated that the award is to be made to educational or nonprofit organizations.

[Insert the either the DOE Form 424a or the DOE 4600.4 if it is anticipated that an award will be made to commercial organizations.]

**4.20 Attachment [ TBD ] -- Recipient-Acquired Property (JAN 1999)**

[Contract Specialist shall identify exempt property and/or equipment under this attachment]

**EXEMPT**

[Insert exempt property which has an acquisition cost less than \$5,000. DO NOT include expendable property (i.e., paper, pens, pencils, gases, chemicals, etc.)]

**EQUIPMENT**

[Insert equipment with an acquisition cost greater than \$5,000]

**4.21   Attachment [ TBD ] -- Federally Owned Property -- Government Furnished (JAN 1999)**